

MOTOR AGE

STRANG IN ISOTTA WINS LONG ROAD RACE

FINISH IN SAVANNAH'S FEATURE

Pos.	Car	Driver	Av. Pace
1—	Isotta Fraschini	Strang	53.78
2—	Apperson	Lytle	50.7
3—	Acme six	Newstetter	50.4
4—	Lozier	Michener	50.1
5—	Isotta	Poole	48.9
Total distance, 342 miles			



LOUIS STRANG, THE WINNER

SAVANNAH, GA., March 19—Louis Strang, driving a 55.1-horsepower Isotta Fraschini car, won the 342-mile Savannah road race today for the Savannah challenge trophy on the 17.1-mile circuit outside of this city, doing the twenty laps in 6 hours 21 minutes 30 seconds, maintaining an average pace of 53.78 miles per hour, and leading his nearest competitor, Lytle, in an Apperson, by over a lap, or 23 minutes 7 seconds ahead of him in point of time. With Strang's victory went the Challenge trophy to an Italian car manned by an American driver and mechanic.

Second honors went to Herbert Lytle in his 48.4-horsepower Apperson Jackrabbit, who fought an uphill race from fifth position and finished in 6 hours 44 minutes 37 seconds, having made an average run of 50.7 miles per hour. Third place went to a newcomer in the racing field, a six-cylinder Acme, piloted by M. Newstetter, also new in racing circles, who pushed Lytle hard for second place, making the



MAYOR TIEDEMAN OF SAVANNAH

distance in 6 hours 47 minutes 5 seconds, establishing an average pace of 50.4 miles per hour. Michener's 48.4-horsepower Lozier, which battled for first place with Strang in the first half of the race and wrested the position from him in the eighth lap, but which later met with that unfortunate combination of circumstances so often experienced in road racing, was a close fourth, having maintained an average of 50.1 miles per hour. Al Poole, in another Isotta Fraschini, and who before the race was by heavy odds the favorite, was obliged to finish fifth after having run second for several consecutive laps. He dropped in the last-half because of the gasoline getting clogged. Leland in the Stearns four and Tone in an American roadster were flagged off at the end of their fifteenth laps, both having experienced exceptional tire troubles. In addition Leland ran through a barbed wire fence that damaged his radiator. McCulla, in an Apperson Jackrabbit, overturned on



GOVERNOR HOKE SMITH CONGRATULATING DRIVER STRANG AND MECHANIC MARQUIS. STRANG IS AT RIGHT—IN THE UPPER SPACE IS THE WINNING ISOTTA-FRASCHINI, WITH STRANG AND MARQUIS



F. G. WEBB, OF
A. A. A., WHO
WAS THE REFEREE



SIX THOUSAND PEOPLE IN THE GRAND STAND, AND A CLEAR LAWN IN FRONT OF IT

the third lap and, although neither he nor his mechanic was injured, the car was officially withdrawn from the contest.

The race will go down in American road-racing history as an epoch-marking event: It was the first road race ever conducted in America under military supervision, the entire 17.1 miles of course being guarded by 150 militia from Savannah, whose services were freely donated by the state, and who prevented any persons getting on or crossing the course unless possessing military passes furnished to a few of the officials and the head factory representative of each contesting car. It was the first road race, outside of eliminating trials, in which every car, foreign or domestic, was manned by American drivers, and it was the first in the history of road racing in this country or abroad in which 87½ per cent of the entrants were running at the finish. Only one car of the eight dropped out. It was the first race of any description ever run in America in which the course was kept absolutely clear from start to finish; in which dogs and other animals were shot if seen approaching the course, and in which one person was shot in the heel for attempting to cross the course when forbidden by the militia.

For days before the race critics had asserted that Georgia militia and Savannah police would not be able to keep the long circuit with its seventeen turns clear throughout the races, and not a few of the doubting Thomases grew skeptical as

the time approached. But the finish showed that Savannah had made good; that the people of that city and Chatham county had successfully carried the day; and because of their efforts there was the best road-racing sport experienced in this country. All credit is due to the many Savannah officials who donated successive days and almost weeks to the perfection of the work, and who are bidding strong for the Vanderbilt cup race of the coming autumn. It is common rumor Savannah's prospects for it are good.

A Lap by Lap Story

Savannah, Ga., March 19—In recognition of the magnitude of the event and its importance to Georgia's great seaport, and by way of demonstrating how rich runs the true sporting blood in the veins of your southern gentlemen, Governor Hoke Smith had proclaimed a legal holiday in the city. Savannah stood ready to honor the occasion to a man and Savannah's far-famed fair women to grace the occasion by their presence. The state at large also took an eager interest in the event and excursion trains from all points poured thousands into town.

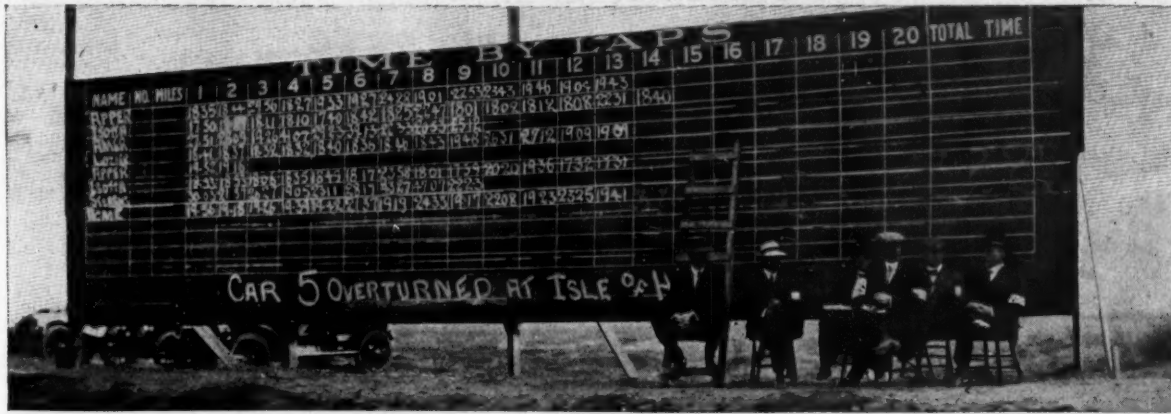
The early morning hours gave poor promise of a sunny day. There were threatening clouds and chilly winds, which compelled those whose official business compelled an 8 o'clock start for the course to don heavy clothes and prudently provide themselves with overcoats and mackin-

toshes. Long before this, however, the militiamen, flagmen and telephone operators in trolleys and motor cars were under way for their stations, and seekers for points of vantage had hurried them in their vehicles, for the course was to be absolutely closed at 8:30 o'clock. By 9 o'clock a normal March sun had chased away the clouds and brought joy to the hearts of womankind at the chance to discard wraps for the gay spring garb that had for weeks been in course of preparation for the great occasion. A half hour later the octet of racing candidates was on hand and drawn up in the order of their start.

Far down the long stretch one could see a line of people extending out of sight, all fully 100 feet away from the road and around the first turn a quarter of a mile to the west hundreds massed. At the Isle of Hope and in Thunderbolt the two settlements on the route, there was a congestion of spectators. Here the efficient militiamen were massed 50 or 100 feet apart. Other soldiers stretched in a thinner line along the open country segments of the circuit. No word of praise can be too high to characterize their discipline and efficiency. The crowd knew they meant business and obeyed. One man sought to cross the track when forbidden and got a bullet in his heel as a souvenir of the military authority that prevailed and as evidence that Major Stephens' soldiers intended them to obey orders. When a car stopped for an adjustment of repair, the soldiers kept back the crowd. Even when the

TABLE SHOWING CARS, DRIVERS, MECHANICS, ENTRANTS AND TIME BY LAPS IN THE BIG RACE THAT WAS

NO.	CAR	Driver	Mechanic	Entrant	Start	Laps	1 Pos.	2 Pos.	3 Pos.	4 Pos.
1—50-H. P. Apperson	Herbert Lytle	Geo. E. Davis	Apperson Bros. Automobile Co.	10:00	Total Time	18:35—2	37:19—3	57:15—3	85:42—5	
2—50-H. P. Isotta	Louis Strang	J. B. Marquis	John H. Tyson	10:01½	Lap Time	18:35	18:44	19:56	28:27	
3—50-H. P. American	F. I. Tone	J. C. Linn	American Motor Car Co.	10:03	Total Time	17:50—1	35:16—1	53:27—1	71:37—1	
4—60-H. P. Lozier	H. Michener	Tom Lynch	Lozier Motor Car Co.	10:04½	Lap Time	17:50	17:26	18:11	18:10	
5—50-H. P. Apperson	W. McCulla	W. H. Wray, Jr.	Apperson Bros. Automobile Co.	10:06	Total Time	27:51—7	56:59—8	76:25—6	117:20—7	
6—50-H. P. Isotta	A. Poole	T. M. Pepperday	Isotta Import Co.	10:07½	Lap Time	27:51	29:08	19:26	41:01	
7—30-60-H. P. Stearns	F. W. Leland	N. J. Brewer	Ross Guerrard	10:09	Total Time	18:41—3	37:08—2	55:40—2	74:12—2	
8—50-H. P. Acme	M. Newstetter	J. P. Price	Acme Motor Car Co.	10:10½	Lap Time	18:41	18:27	18:32	18:32	
					Total Time	19:52—5	39:08—5	Car upset and was		
					Lap Time	19:52	19:18			
					Total Time	18:53—4	37:46—4	57:36—4	76:11—3	
					Lap Time	18:53	18:53	19:50	18:35	
					Total Time	30:03—8	52:00—7	78:27—7	97:32—6	
					Lap Time	30:03	21:57	26:27	19:05	
					Total Time	19:56—6	39:14—6	58:44—5	78:23—4	
					Lap Time	19:56	19:18	19:30	19:35	



TWO IMMENSE BULLETIN BOARDS TOLD THE LAP-BY-LAP STORY OF THE RACE

C. M. HAMILTON
THE ENTRANT OF
POOLE'S ISOTTA

Apperson overturned, only enough men to right the car were permitted to approach it.

Sixty flagmen encircled the course showing racers "yellow" for danger and "red" for a clear course. They had been rehearsed for a week during the daily practice hours. Fifteen telephone stations had been established and manned. "It was a cinch to drive down that aisle of safety," said one of the pilots. "All you had to do was to open her up and let her go at her limit."

The grand stand was gay with the A. A. A. banners above and the national colors and flags stretched beneath the boxes. It was set at an angle so everyone had an uninterrupted view of the racers rushing down the home stretch. In the vast open field opposite, there were only the press and official stands and two great bulletin boards, on which were painted the scores of the cars by laps, to obstruct the view across the open to the White Bluff road, down which for a mile the racers could be seen in the stirring speed flights and exciting struggles to pass one another. Within that great field were but the megaphone men and the bulletin chalkers.

Savannah's fashionable folk are not early risers, so when 10 o'clock, the hour of the start, drew near, the great stand, with its 5,000 seats and sixty-five boxes, was but half filled and there were many vacancies in the fifty parking spaces adjoining and extending up the str tch. In fact, it was not until the American, the third car was sent away, that Governor Hoke Smith

and various state and judicial dignitaries drove up in carriages with bared heads in response to the greeting of the standing crowd. Within an hour, though, the stand and parking spaces were filled.

Start of the Big Race—Sharp at 10 o'clock Fred J. Wagner, the A. A. A. official starter, began the sending away of the cars at minute and a half intervals in the following order:

- 1—Apperson Jackrabbit...Herbert Lytle
- 2—Isotta Fraschini.....Louis Strang
- 3—American.....F. J. Tone
- 4—Lozier.....H. Michener
- 5—Apperson Jackrabbit...William McCulla
- 6—Isotta Fraschini.....Al Poole
- 7—Stearns.....Frank W. Leland
- 8—Acme.....M. Newstetter

Before the start it was announced that the official measurement of the circuit was 17.1 miles, making a 342-mile run of it for the twenty laps. The contending cars were limited to a maximum piston displacement of 575 cubic inches. When the last car had been sent away and vanished from sight down the White Bluff road there was a craning of necks for the first racer to reach the homestretch. It was Lytle. He flashed by in 18 minutes 35 seconds. Forty-five seconds later came John H. Tyson's red Isotta with Christie's old mechanic rushing the pace so fast it had picked up 45 seconds on the flying Jackrabbit by a lap in 17 minutes 50 seconds, the fastest of the round. The others were content with a more moderate pace running from 18 minutes 41 seconds for Michener to 19 minutes 56 seconds for Newstetter. Tire troubles which afflicted Tone sorely throughout the race, began early for the American, reducing its time

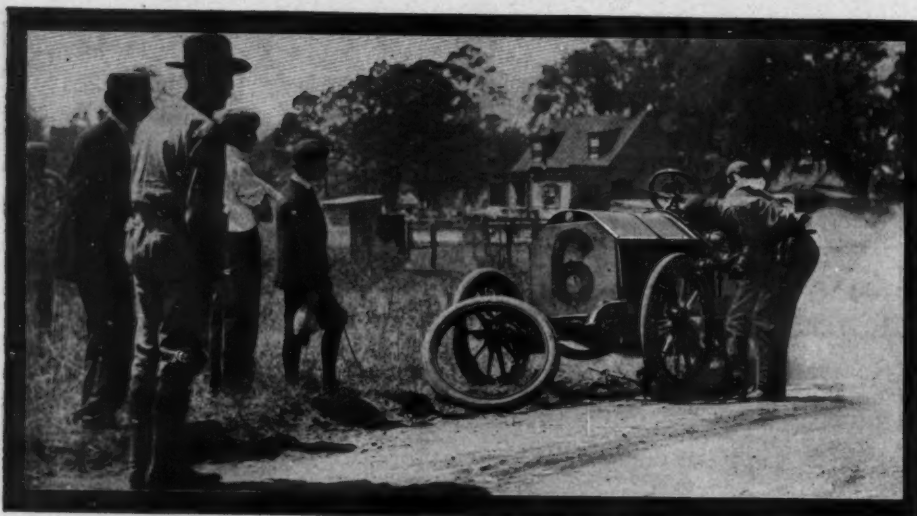
to 27 minutes 51 seconds. Leland had been forced to stop and brought up the rear of the procession in 30 minutes 3 seconds, but got a grandstand cheer.

Second Lap, 34.2 Miles—Strang was evidently out for a hammer-and-tongs fight for the lead from the start. Running the round in 17 minutes 41 seconds he made up his minute and a half handicap and passed Lytle into the head of the procession and a real lead in the race of nearly 2 minutes over his nearest pursuer. Leland threw away the target and passed the luckless Tone.

Third Lap, 51.3 miles—In the third round word was received that McCulla's Jackrabbit had overturned. It had upset in rounding one of the sharp Isle of Hope turns too recklessly. McCulla was pinned beneath the car. There was a rush of ready helpers, who quickly righted the machine and released its pilot, who escaped with a sprained and bruised back. The car was too badly damaged to continue in the race and soon was declared officially out. Strang had retained his 2-minute lead over his nearest pursuer, but Michener had got by Lytle and so had Poole so far as the order of the procession went. Newstetter had moved up into fifth place and Tone gotten by Leland. As a matter of fact, the Stearns had thrown a tire and torn through a barbed wire fence. Both he and his mechanic, Nick Brewer, were cut up a bit by the barbs, but pluckily continued after plugging the radiator.

RUN AT SAVANNAH, THURSDAY, MARCH 19 AND WON BY THE ISOTTA FRASCHINI, DRIVEN BY STRANG

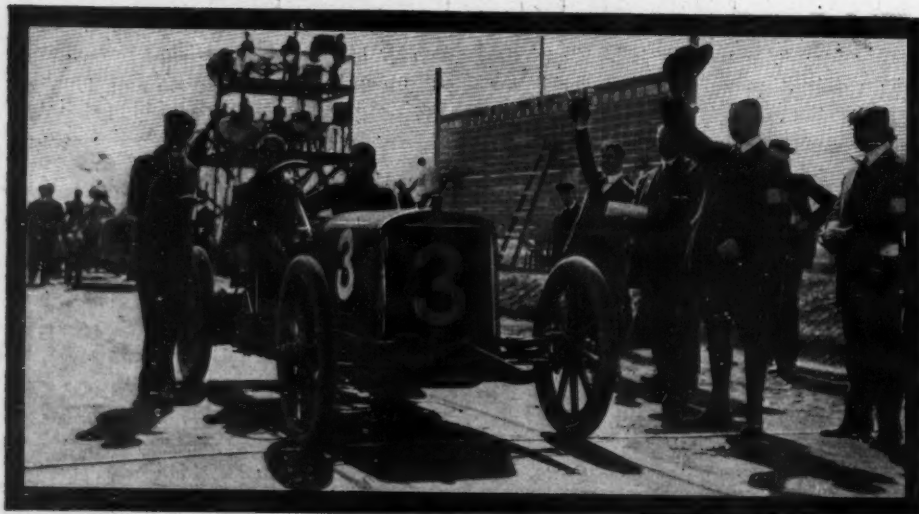
Pos.	6 Pos.	7 Pos.	8 Pos.	9 Pos.	10 Pos.	11 Pos.	12 Pos.	13 Pos.	14 Pos.	15 Pos.	16 Pos.	17 Pos.	18 Pos.	19 Pos.	20 Pos.	Fastest Lap
105:15-5	124:42-5	149:10-5	169:11-5	191:04-5	214:47-5	234:33-5	253:37-5	273:20-5	292:03-5	310:45-5	331:02-5	349:19-4	367:42-3	386:20-2	404:37-2	18:17
19:33	19:27	24:28	19:01	22:53	23:43	19:46	19:04	19:43	18:43	18:42	20:17	18:17	18:23	18:38	18:17	
89:17-1	107:59-1	126:24-1	149:11-2	167:13-1	185:15-1	203:27-1	221:35-1	244:06-1	262:46-1	281:48-1	300:28-1	319:07-1	341:26-1	362:23-1	381:30-1	17:26
17:40	18:42	18:25	22:47	18:02	18:02	18:12	18:08	22:41	18:40	19:02	18:40	18:39	22:19	20:57	19:07	
146:49-7	186:02-7	208:35-7	229:28-6	254:40-6	288:54-7	310:23-6	332:05-6	353:45-6	375:05-6	396:30-6	Flagged off course after five cars finished.					
29:23	39:13	22:33	20:53	25:12	34:14	21:29	21:42	21:40	21:20	21:25						19:26
92:32-2	111:28-2	130:14-2	148:57-1	168:45-2	195:16-3	222:28-3	241:37-3	260:46-3	282:55-3	301:46-3	320:31-3	343:38-2	366:27-2	390:20-4	409:17-4	19:27
18:40	18:36	18:46	18:43	19:48	26:31	27:12	19:09	19:09	22:00	18:51	18:45	23:07	22:49	23:53	18:57	
Withdrawn.																
95:00-3	113:17-3	137:15-3	155:22-3	173:01-3	193:21-2	212:57-2	230:29-2	248:00-2	274:41-2	294:15-2	313:46-2	336:26-5	354:34-5	401:20-5	418:53-5	19:16
18:49	18:17	23:58	18:08	17:39	20:20	19:36	17:32	17:31	20:41	19:34	19:31	42:40	28:08	16:46	19:33	
119:49-6	148:00-6	191:27-6	238:34-7	260:57-7	288:07-6	310:27-7	337:29-7	359:51-7	382:35-7	405:24-7	Flagged off course after five cars finished.					19:05
22:11	28:17	43:27	47:07	22:23	27:10	22:20	27:02	22:22	22:42	22:51						
96:05-4	119:42-4	139:01-4	163:34-4	182:51-4	204:58-4	224:21-4	247:46-4	267:27-4	287:46-4	307:24-4	329:03-4	348:33-3	368:10-4	387:42-3	407:05-3	19:17
19:42	21:37	19:19	24:33	19:17	22:07	19:23	23:25	19:41	20:19	19:38	21:39	19:30	19:37	19:33	19:22	



POOLE CHANGING RIM—SOLDIER ALLOWED NOBODY NEAR



LOZIER AT SANDFLY STATION AND SOLDIER ON GUARD



GREETING GOVERNOR HOKE SMITH AS AMERICAN CAR STARTED

Fourth Lap, 68.4 Miles—In this round of sprinting Strang increased his lead by a half minute while Michener hung grimly to his 2-minute margin over the other Isotta. The Acme, which was running on a 19-minute schedule under instructions, had crept up into fourth place through Lytle having to stop to mend with tape a broken oil feed leading into the crankcase. Tone was having more troubles with his tires and had been passed by Leland.

Fifth Lap, 85.5 Miles—Strang pulled away a bit further from Michener, who hung stubbornly to his 2-minute lead over Poole's Isotta.

Sixth Lap, 102.6 Miles—The Acme stopped as per schedule to replenish fuel and enabled Lytle to make up 5 minutes of his lost ground.

Seventh Lap, 119.7 Miles—Poole was forced to stop and change tires and put in new plugs, the porcelain having broken. This gave Michener a lead of 7 minutes and allowed the steady plodding Newstetter to creep up within 2 minutes of him. Lytle had to change spark plugs and lost what he made up on the Acme. Strang was now leading by fully 4 miles.

Eighth Lap, 136.8 Miles—The end of this round saw the Lozier, which had been speeding speedily and consistently, in the lead, the only American car to poke its radiator ahead of the Italian. It was but 14 seconds to the good, however, so the struggle was a neck-and-neck one between the American and Italian cars. When the score was announced there was great excitement over the duel in progress for the lead, the pair being nearly 7 minutes ahead of the other Isotta.

Ninth Lap, 153.9 Miles—Strang started in with vigor to overtake the flying Lozier, which had snatched the lead from him to such good purpose that he overtook and passed Michener, leading him by a minute and a half at the end of the lap. Poole by a circuit in 17 minutes 39 seconds had gained considerably on the two leaders.

Tenth Lap, 171 Miles—With the race half over it looked almost like a runaway for Strang, for he led Poole and Michener respectively by 8 and 10 minutes. Tyson's Isotta had averaged 54½ miles an hour. Lytle and Newstetter looked hopelessly far behind, and Leland and Tone, though pluckily persevering, were not to be considered in the chances. At the half-way point seven of the eight starters were running. It was the best race yet.

Eleventh Lap, 188.1 Miles—With this lap the fine showing of the Lozier came to an end and its chances of figuring prominently at the finish began to vanish, for tire troubles put it 8 minutes behind Poole's car. Newstetter had increased his lead over Lytle to 10 minutes. In fact, it was a bad round for all of the racers but Strang.

Twelfth Lap, 205.2 Miles—Strang now had the race well in hand and with his lead of 18 minutes, it looked all over but the shouting. A good fight for second

place was once more on, the Lozier having bucked up a bit and cut down Poole's lead to 2 minutes. The six-cylinder Acme was running along in fourth place.

Thirteenth Lap, 222.3 Miles—Poole got the Isotta running again in fine shape and made a desperate effort to cut down his mate's lead by a lap in 17 minutes 31 seconds. This brought him within 4 minutes of Strang and 12 minutes ahead of Michener. Once more it looked like one, two for the pair, with the Americans far to the bad.

Fourteenth Lap, 239.4 Miles—Now began Herb Lytle's memorable run to regain lost ground and again place the Apperson among the leaders. From this point to the end of the race the Apperson midget went every lap but one under 19 minutes. His troubles were over, his tanks refilled, and his tires changed for the final fight for a good place in the race. Newstetter, though, still hung stubbornly to that 5-minute lead of his.

Fifteenth Lap, 256.5 Miles—Lytle covered the next lap in 18 minutes 42 seconds and crept up to within 3 minutes of the Acme. Strang still held to his 13-minute margin over Poole, and Lozier was dropping further back to Acme.

Sixteenth Lap, 273.6 Miles—The relative positions of the gladiators remained practically unchanged in this round, except that the Lozier crept up a bit nearer to Poole. Neither Leland nor Tone was scored for this round. Leland had run two laps on a bare rim.

Seventeenth Lap, 290.7 Miles—Calamity overtook Poole in this round and cost him his place among the leaders. There was a stoppage in his gasoline lead which compelled him to remove his carbureter. It took 42 minutes 40 seconds for the lap and at the end he had dropped from second to fifth place. Lozier was again in second place, but was 24½ minutes behind the leader. Lytle's plucky driving had brought him to within a minute of Newstetter, or, to be exact, 46 seconds. Strang was making a runaway of the contest with a lead of 24 minutes.

Eighteenth Lap, 307.8 Miles—Now began the struggle between the trio of battlers for place honors which most of all made a great race of the contest and will long live in motor road racing annals. Lytle had passed Newstetter and had crept up so close to Michener that the Lozier pilot only held his runner-up place by a little over a minute margin with Newstetter less than a minute behind the Jackrabbit steersman. The closeness of the scrap is evidenced by the score: Michener, 366 minutes 37 seconds; Lytle, 367 minutes 42 seconds; Newstetter, 368 minutes 10 seconds. When the complete figures appeared on the bulletin boards the spectators woke up to the situation and from that point on eagerly strained their eyes up the stretch for the coming of the cars and wildly cheered each one as it shot by.

Nineteenth Lap, 324.9 Miles—Lytle was



DIAMOND TIRE CONTROL—ALL THE AMERICAN CARS USED THEM



CARS LINED UP WAITING FOR THE START, PRESS STAND AT RIGHT



THE McCULLA-APPERSON RIGHTED AFTER ITS UPSET



LYTLE IN APPERSON JACKRABBIT STARTING IN THE 341-MILE EVENT—
OFFICIAL STARTER WAGNER AT LEFT OF CAR

the first to be sighted. He had opened the gap separating him from his pursuers to exactly 4 minutes. Newstetter was now his pursuer, having passed Michener into a lead of over 3 minutes. Poole in this round made one last despairing run and in so doing scored the fastest lap of the race for the Isotta, 16 minutes 46 seconds. He was hopelessly out of it, however, for one, two, three honors.

Twentieth Lap, 342 Miles—Only an accident could have deprived Strang of the race. In fact, he had completed the nineteenth round before his pursuers had reached the eighteenth lap post. He had an ovation as he crossed the tape a winner in 381 minutes 30 seconds, or 6 hours 21 minutes 30 seconds.

Interest in the race was now centered in the struggle for the second place. Little Herb Lytle met with a wildly enthusiastic reception as he flashed by in 404 minutes 37 seconds. Hardly less enthusiastic was the greeting accorded Newstetter, who was third in 409 minutes 5 seconds, and Michener, who finished fourth in 409 minutes 17 seconds. Poole captured fifth place in 418 minutes flat. Tone and Lozier were last scored at the close of the 15 laps, or 256.5 miles, the American in 366 minutes 30 seconds, and the Stearns in 405 minutes 24 seconds. The Savannahans were heartbroken over the bad luck of their sole representative, which Ross Guerraud had entered.

It had been the grandest and closest struggle in the history of long-distance motor car racing in this country. Seven out of eight starters were fighting the fight when the race closed, a record of survivorship never even approached in any previous motor road race on either continent.

The winning Isotta, which was equipped with Michelin tires, did not even have to make a replacement during the race and kept its motor running without a stop from start to finish. Its only mishap was the breaking of the starting crank through the

strap holding it up being too tight.

The Apperson's motor never once stopped running. An oil lead to the crankcase broke, necessitating wrapping with tape. Spark plugs were changed several times and two tire replacements were made. The Acme ran on a 19-minute schedule. It was stopped in the sixth and ninth laps for fuel and in the eighth for new tires. It was the only six-cylinder car in the race.

Analyzing the Race

Before beginning an analysis of what each of the eight cars did in the race it is well that some credit should be given those whose efforts made the race possible, and insured its safe conduct until the last car was flagged off. Governor Hoke Smith, of Georgia, not only granted the use of the 150 troops but encouraged the Savannah club by his presence at the races Thursday and at the completion of the event congratulated Driver Strang and Mechanic Marquis on their remarkable run,

commenting incidentally "that although a foreign car won it was manned by an American crew," and that "only the brawn, vigor and determination of American makers, drivers and mechanics would wrest the road racing supremacy of the world from the foreigners." Later in the evening at the Thunderbolt Casino, where the Savannah Automobile Club gave a banquet in the form of a southern dinner to the visiting motorists, he presented to Drivers Strang, Lytle and Salzman bronze medals bearing the coat-of-arms of the city of Savannah and also the Southern run-about cup and the Southern six-cylinder cup to the Apperson and Thomas winners.

Mayor George W. Tiedeman, of Savannah, not only assured the use of that part of the course lying within the city limits, but provided under the direction of Chief of Police Austin sixty patrolmen and a mounted squad, as well as lent his untiring aid to the perfecting of the hospital and telephone arrangements. George J. Baldwin, president of the Savannah Electric Co., arranged for the stopping of electric cars crossing the course during the race, as well as the stopping of traffic entirely on one line that ran along the side of the course. Major W. W. Williamson saw to the conduct of the troops, which were under the personal charge of Captain R. J. Davant.

From the start to the end of the first half the interest centered in the struggle for first place which was mainly between the Strang Isotta and Michener with his Lozier. Strang held first for seven laps, the Lozier taking it in the eighth but surrendering it in the ninth, falling back in the tenth, giving Strang a lead of 10 minutes 1 second. Strang was running so well at the end of the tenth lap that the spectators began figuring on the order of finish for second, third, fourth and fifth places, leaving Strang as a certain winner.

The second half was featured by the struggle for second and third places. In laps eleven, twelve, thirteen, fourteen, fifteen and sixteen the dispute was be-



STRANG TAKING THE BANKED TURN ONTO WHITE BLUFF ROAD



ACME SIX STARTING IN 341-MILE RACE, WITH HONORARY REFEREE THOMPSON AND LEWIS R. SPEARE AT RIGHT

tween Michener and Poole, Poole persistently holding second place for seven laps with a lead of from 1 minute 56 seconds to 12 minutes. Poole lost this in laps seventeen and eighteen; Michener jumped into the gap and took it for laps seventeen and eighteen, but had to pass it up to Lytle in nineteen and twenty. The Acme driven by Newstetter had been running fourth up to the end of the sixteenth but it jumped into third place at the end of lap seventeen, dropped into fourth again, for lap eighteen, but was back into third place for the last two circuits.

In recounting the story of the race it must be borne in mind that the two Isotta cars were reckoned as big factors and all of the other car entrants realized this. It is not known exactly what were the previous plans as to how Strang and Poole should drive, but from what has transpired since the race it is apparent that Strang went out "to beat it" right from Wagner's starting signal; whereas Poole took a safe pace for the first half and then perhaps was ready to strike whatever pace the exigencies called for. This was the two-car team against which the other six entries had to fight and perhaps it never will be known what were the special directions given to all of the drivers.

Strang Forces Pace

As it was, Strang went out to "beat it" and "beat it" he certainly did. Out of the twenty laps he held first place in every one but the eighth, when the Lozier crowded him out by 14 seconds, which lead was lost in the ninth, when Strang was leading by 1 minute 32 seconds. From that lap to the end he never was in danger and finished 23 minutes 7 seconds ahead of Lytle, his nearest competitor.

But while Strang had by the last count a runaway of it his position was far from such during the earlier part of the race. Everybody had staked pretty liberally on the white Lozier to hold the Isottas and its work in the first eight laps showed

how strong was the basis for this belief. In every one of the first eight circuits Michener did the work in 18 minutes and a few seconds—a phenomenal record for consistent running. Here are the lap times: 18 minutes 41 seconds, 18 minutes 27 seconds, 18 minutes 32 seconds, 18 minutes 32 seconds, 18 minutes 40 seconds, 18 minutes 36 seconds, 18 minutes 46 seconds and 18 minutes 43 seconds. The running of Strang was equally creditable but in the eighth lap he dropped to 22 minutes 47 seconds, whereas his earlier laps had been faster than the Lozier, being as follows: 17 minutes 50 seconds, 17 minutes 26 seconds, 18 minutes 11 seconds, 18 minutes 10 seconds, 17 minutes 40 seconds, 18 minutes 42 seconds, 18 minutes 25 seconds and 22 minutes 47 seconds. Strang had made three circuits in less than 18 minutes, whereas Lozier did not make a lap under the 18-minute line.

Lozier a Big Factor

But the Lozier's chances ended with the ninth lap. The tenth and eleventh were bad, requiring 26 minutes 31 seconds and

27 minutes 12 seconds respectively to go the course. It apparently was at this time that the exhaust pipe connecting with the muffler worked loose. Doubtless added to this was the work of refilling with gasoline and oil. For four laps Michener picked up his old pace but dropped back in the seventeenth, eighteenth and nineteenth to the tune of 23 minutes 7 seconds, 22 minutes 49 seconds and 23 minutes 53 seconds respectively for the laps. The last round was made in 18 minutes 57 seconds, the car showing its earlier speed when free from the muffler and tire troubles. But while it dropped back into fourth place the Lozier was one of the interesting factors in the race. Lap after lap it came tearing down past the grand stand holding the black stretch of road as easily and gracefully as a boat holds the placid bosom of a summer lake; lap after lap its motor worked with that regularity of the veteran road machine; and lap after lap did Driver Michener and his assistant take their signals from the points along the course, knowing each lap the position they held in the contest. Even when the Lozier's chances against the Strang Isotta combine were poor it was an active factor in the Apperson-Poole-Acme game and not until it crossed the finishing line did the spectators know the exact position it held in the field.

Poole Becomes Aggressive

When the Lozier dropped from second to third place in the tenth lap and Al Poole with his Isotta took second place to Strang in the other Isotta the horizon looked a little gloomy for American machines and people began talk of first and second to the Isotta. Not only had Poole jumped into second place, but was leading Michener by 1 minute 55 seconds, which was increased to 9 minutes 31 seconds in the eleventh lap. Things looked gloomy. Poole made two fast laps—17 minutes 32 seconds and 17 minutes 31 seconds respectively—and everybody thought the earlier prediction of "Poole letting loose in the



LELAND IN STEARNS NEGOTIATING ONE OF THE BANKED TURNS



LELAND STARTING IN THE STEARNS—WEDNESDAY'S SIX-CYLINDER RACE—SALZMAN STARTING IN THE THOMAS

second half" had come true. So it had, but not for long, for he, too, was doomed to disappointment. Spark plugs went back on him, the green porcelain cracked with the intense heat. Added to this was the trouble of the compression relief cocks in his cylinder heads working open. Once they opened on the home stretch, necessitating a stop at the east end of the grand stand, which was of sufficient interest to bring the entire grand stand to its feet, wondering if his lightning pace was going to last to the end of the twentieth lap. His fifteenth and sixteenth laps were slower—19 minutes 34 seconds and 19 minutes 31 seconds—then came his Waterloo. Laps seventeen and eighteen clouded all his hopes and were the turning points of the race in the deciding of what cars would get second, third and fourth places.

Poole Goes to the Bad

Going down the back stretch on what is known as Montgomery crossroads his carbureter went back on him. It was necessary to take it off and clean out the gasoline line, which brought the time of the lap up to 42 minutes 40 seconds, the slowest lap of the day except for a couple made by Leland in his Stearns, when he went the circuit on three tires and had

other troubles. This lap spoiled the prospects of victory for Poole, for while he worked on the roadside the Apperson, Lozier and Acme had been flying past, the Apperson and Acme climbing up into second and third places with each lap, while the Lozier was losing a little but making certain its position ahead of Poole.

At last the carbureter was fixed. Poole had done his best, his spark plugs were in condition, the compression relief cocks were tight and with the desperation of a demon he swung into the finish of the eighteenth lap, determined to cut down the long lead his competitors had on him. The megaphone announcement, "No. 6 has started again," was received with applause; in a few minutes came another announcement, "No. 6 has passed the Isle of Hope"; scarcely was this over when came a third, "No. 6 is approaching Thunderbolt"; with this everybody was aware Poole was "beating it" and looked for records. "No. 6 is in the home stretch"; the grand stand was on its feet, field glasses were raised; soon a speck was seen on the stretch, soon it became a cloud of smoke; Poole was coming. A minute later he was past the grand stand traveling at terrific speed, the fastest the spectators had an opportunity of judging. Around the

corner onto the White Bluff road he traveled, starting his memorable record-breaking nineteenth lap, throwing up clouds of the loosened earth and blinding the flagman at the bridge. He soon was lost in the distance. Again the megaphone told of his traveling and it was not surprising when the nineteenth lap was done in 16 minutes 46 seconds and the record of the course was set. On the afternoon before Salzman in his Thomas six had made the lap in 16 minutes 51 seconds, but Poole had cut 5 seconds off that mark. The effort was useless—he was 11 minutes behind the Lozier, which was running fourth, and one lap was no distance in which to make up such a lead. He dropped to 19 minutes 3 seconds in the last lap.

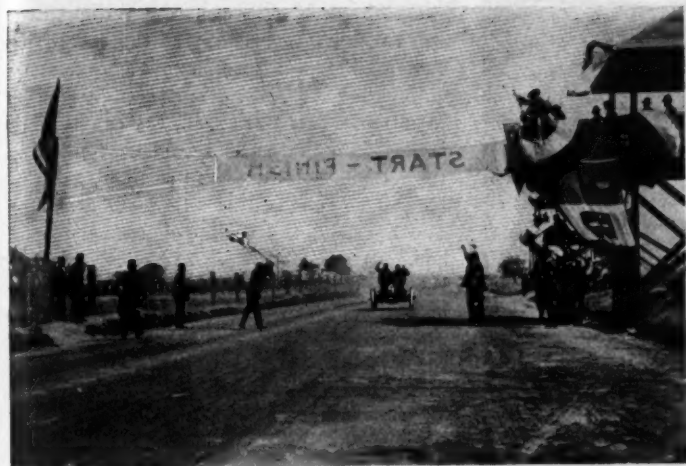
The three-cornered fight between the Lytle-Apperson, Michener-Lozier and the Newstetter-Acme was interesting and a big feature in the second half of the race. At the start of the latter half Lozier was traveling third, the Acme fourth and Apperson fifth, with the Lozier 2 minutes ahead of the Acme and the Acme 10 minutes in the lead of Lytle.

Lytle Makes Game Effort

An interesting chapter in the history of road racing will be the story of how stubbornly Lytle worked from that fifth position to second. He must have been almost resigned to fifth, for he held it for thirteen consecutive laps. He was dropped there in the fourth and did not see any light until the seventeenth, when he climbed to fourth place; in the eighteenth he nailed third; in the nineteenth he jumped into second and held it in the last lap. During the "dark ages" of his race, laps four to sixteen inclusive, he had his little troubles. A copper oil pipe to the crankcase broke and had to be taped; then the hand oil pump for injecting oil into the crankcase broke; added to these discomfits was the trouble with the small lubricator that the car carried on its dash and which is fed from a rear oil tank by pressure. Mechanic Davis pumped oil all the time and then the motor could not get enough.



SAVANNAH OFFICIALS—FROM LEFT TO RIGHT—F. C. BATTEY, HARVEY GRANGER, GEORGE J. BALDWIN, A. B. MOORE AND MAYOR GEORGE W. TIEDEMAN



LYTLE WINNING WITH HIS APPERSON—SOUTHERN CUP RACE—THOMAS-DETROIT BEING FLAGGED OFF

Lytle scrapped with Davis and Davis argued with Lytle. However, the "long lane" had a turning which came with the second half of the race. With lap eleven came the end of the 22, 23, 24 and 28-minute laps; and the last ten circuits were, with one exception, each made in less than 20 minutes. This running was so consistent as to bring the grand stand to its feet with cheers for the plucky work the car was doing. Here are the lap times for the last half: 19 minutes 46 seconds, 19 minutes 4 seconds, 19 minutes 43 seconds, 18 minutes 43 seconds, 18 minutes 42 seconds, 20 minutes 17 seconds, 18 minutes 17 seconds, 18 minutes 23 seconds, 18 minutes 38 seconds and 18 minutes 17 seconds. This 18 and 19-second traveling lap after lap was what put him in second place. Gradually, lap after lap, he was eating into the 10-minute lead the Acme had on him. But it was slow work. The Acme gained 23 seconds in the eleventh but lost 4 minutes 21 seconds in the twelfth, this leaving but 5 minutes 51 seconds between them. In the thirteenth the Acme gained a couple of seconds but lost 1 minute 36 seconds in the fourteenth, leaving Lytle but 4 minutes 17 seconds behind. In the fifteenth Lytle cut 56 seconds off this, leaving but a margin of 3 minutes 21 seconds, with five laps to go. At the end of the sixteenth it was cut to 1 minute 59 seconds; at the end of the seventeenth it was reduced to 46 seconds; and by the close of the nineteenth it was converted into a lead of 1 minute 23 seconds. In the twentieth lap he gained 1 minute 5 seconds.

Steady Running of Acme

All this time Newstetter in his Acme six was running beautifully, all the spectators feeling confident he could get several seconds more to the lap out of his machine. Apparently, however, he was running according to directions, with the apparent aim of having his car finish the race. In the first half Newstetter had directions not to go over the 19 minute 30 second mark and his following score shows how faithfully he followed directions: 19

minutes 56 seconds, 19 minutes 18 seconds, 19 minutes 30 seconds, 19 minutes 38 seconds, 19 minutes 42 seconds, 21 minutes 37 seconds, 19 minutes 19 seconds and 19 minutes 17 seconds. In the sixth lap he stopped to take on gasoline and oil, which accounts for his slower gait. Everybody hoped in the second half that Newstetter would "let her out," as the car made a circuit in practice close to the 16-minute mark. Lap after lap the six cylinders were shooting with the utmost regularity and in spite of its 126-inch wheelbase, which was too long for taking the turns at speed. Newstetter drove his maiden race with the utmost composure, seeing nothing when passing the grand stand but the endless ribbon of black oil-coated road ahead of him.

Viewing Newstetter's performance from the start, it is interesting to note that he worked from the bottom up. At the end of one lap he was in sixth place with only the American and Stearns below him and both of them had tire troubles. Newstetter apparently had not taken any chances. He held sixth place for a couple of laps, then jumped into fifth because of the upsetting of McCulla's Apperson and although up a point retained his same position with the others in the race. But

if he was given fifth by McCulla's accident he soon was to get fourth, for in the fourth lap he took the lead from Lytle, who was over 28 minutes on the circuit. Once in fourth Newstetter held it for thirteen consecutive laps and in the seventeenth passed Poole, who was having carbureter troubles; incidentally he jumped into third place. At this point Lytle was trailing him by 46 seconds. In the eighteenth Lytle jumped ahead, putting Newstetter back into fourth position. In the nineteenth Newstetter was up in third again, having passed the Lozier, then was safe in third place. In the twentieth he held it with a margin of 2 minutes 12 seconds ahead of Michener.

Standing in the Battle Royal

Thus ended the gallant Lytle-Newstetter-Michener-Poole struggle for position: Lozier second for eight laps, then Poole second for seven laps, then Lozier again for a couple of laps and finally Lytle second for the last two laps. The Lozier was third for the first lap, Lytle for the second and third, Poole to the ninth, then Lozier to the sixteenth, then Acme, then Lytle and lastly Acme. Strang was first all through except the eighth, when the Lozier led him. Poole ran in fourth place for three laps, then Newstetter took it for



THE PENNSYLVANIA ROADSTER THAT BROKE ITS TRANSMISSION IN EVENT ONE, WEDNESDAY'S RACE FOR SOUTHERN CUP, AND WAS WITHDRAWN

thirteen laps, then Lytle took it for one, then Newstetter again for one lap and lastly Lozier for the last two. The ill-fated McCulla-Apperson held fifth position for its two laps, surrendering it to Newstetter, who held it for one circuit and passed it up to Lytle, who carried it for thirteen circuits before he could hand it over to Poole, who held onto it for the last four circuits. It truly can be said that No. 5 position was the hoodoo place.

American Slowed by Tire Troubles

It was to be regretted that the two remaining cars, the American and Stearns, should have been out of the interest column so early in the race, in fact, they hardly got into it. Tone's American had a soft left rear tire when it was waiting at the starting point and the right rear was not inflated enough. Several around the starting point remarked about the tires, a few contenting themselves by thinking it had been left under-inflated on purpose with the hope that the rise in temperature consequent upon a lap or so of running would bring them up to the proper inflation. But this was not to be, for scarcely had the car disappeared down the White Bluff road than the megaphone man gave forth his initial announcement: "No. 3 has a tire off at the Montgomery cross-road," and not long after came a second megaphone: "No. 3 has two tires off." This told the story of how this car that previously was regarded a dark horse was so soon out of the running. After this came other announcements of tire troubles. Before the race the American driver had



FLAGMEN AT EVERY TURN SIGNALLED "RED" FOR CLEAR COURSE AND "YELLOW" FOR DANGER

spoken of trouble with his tires, the trouble being too few lugs. Efforts were made to have this trouble rectified, but apparently without success. The fastest lap of the cars was the third, done in 19 minutes 26 seconds. Following this were seven very slow laps as follows: 41 minutes 1 second, 29 minutes 23 seconds, 39 minutes 13 seconds, 22 minutes 33 seconds, 20 minutes 53 seconds, 25 minutes 12 seconds and 34 minutes 14 seconds. At this point the car

got through its tire and other difficulties and ran until flagged off at the end of its fifteenth lap with commendable regularity doing each of the five consecutive laps in 21 minutes and a fraction, the exact times being: 21 minutes 29 seconds, 21 minutes 42 seconds, 21 minutes 40 seconds, 21 minutes 29 seconds and 21 minutes 25 seconds. The car held the road excellently on the home stretch and owing to its low carriage with underslung frame did not appear to be traveling as fast as it really was going. The writer watched it taking several of the banked turns, on all of which it held the surface well. It should be able to take turns at high speed.

Leland Runs in Hard Luck

For the second time Frank Leland in his Stearns was traveling in hard luck. Leland was a prime favorite because his car was entered by a private owner. When he got away from the starting tape the grand stand rose and gave him a mighty cheer, the best send-off of any of the cars. He started well, was on his high speed before far on the course and traveled fast to the turn onto the White Bluff road. Down the White Bluff road he flew, eagerly watched by the thousands in the grand stand until out of sight in the bushes, carrying with him the wishes of better luck than the day before when he broke a connecting rod. He was 30 minutes 3 seconds making the first lap, but in spite of being late the crowd cheered as he came down the home stretch with his little red 7 showing up on the front of the radiator. The bad luck of this lap was to stay with him.

MECHANICAL DETAILS OF THE EIGHT CARS THAT CONTESTED IN THE

Car No.	CAR NAME	H. P.	Cyl. Diam.	Piston Stroke	Wheel-base	Wheel Diam.	Size of Tires	Clutch	Transmission	Drive
1	Apperson Jackrabbit	48.4	5½	5	105½	34	.....	Metal band	Selective 4 and 1	Side chain
2	Isotta Fraschini	55.1	5.7	4.7	118	34.25 34.64	3.5 4.7	51 disks	Selective 3 and 1	Side chain
3	American Roadster	44.1	5¼	5½	110	36	3½ 4	Leather cone	Selective 4 and 1	Shaft
4	Lozier	48.4	5½	6	120	36	.....	Disk	Selective 4 and 1	Side chain
5	Apperson Jackrabbit	48.4	5½	5	105½	34	.....	Metal band	Selective 4 and 1	Side chain
6	Isotta Fraschini	55.1	5.7	4.7	118	34.25 34.64	3.5 4.7	51 disks	Selective 3 and 1	Side chain
7	Stearns Four	46.2	5¾	5¾	120	36	4 5	Expanding shoes	Selective 4 and 1	Side chain
8	Acme Six	48.6	4½	5	126	36	4 4½	Leather cone	Selective 4 and 1	Side chain

MECHANICAL DETAILS OF THE FIVE CARS THAT COMPLETED

Car No.	CAR NAME	H. P.	Cyl. Diam.	Piston Stroke	Wheel-base	Wheel Diam.	Size of Tires	Clutch	Transmission	Drive
1	Pennsylvania	36.1	4¾	5¼	114	34	3½ 4½	Cone	Selective 3 and 1	Shaft
4	Apperson	36.1	4¾	5	106	34	4 4½	Metal band	Selective 3 and 1	Shaft
6	Thomas-Detroit	40	5	4¾	112	34	4	Cone	Selective 3 and 1	Shaft
2	Thomas Six	72.6	5½	5½	127	36	4½ 5	Disk	Selective 4 and 1	Chain
3	Stearns' Six	69.3	5¾	5¾	130	36	4 5	Expanding shoes	Selective 4 and 1	Chain

In rounding one of the corkscrew twists of the Isle of Hope road he ran over a corner, threw off a tire and crashed through a barbed wire fence. The strands of the wire worked havoc with his radiator, which had to have impromptu repairs with short sticks of wood and mud. Then the crash against the fence posts broke one of the short levers within the crankcase which are interposed between the bottom of the valve plunger stem and the cam on the camshaft. This cut one of the four cylinders out and the car had to make the remainder of the trip on three cylinders. But the troubles did not cease here. In the fifth lap he had a tire off and as he was without a spare tire and as he had passed his control he was forced to complete about seven-eighths of the course on three tires. He went limping, as it were, passed the grand stand, took the White Bluff road turn at good speed and made fast traveling down the White Bluff road.

This ill-luck of the fifth lap occurred again in the seventh, when he passed the stand with the right rear tire off. He was compelled to make the majority of the circuit on three tires as well as three cylinders. In spite of this Leland got his grand stand cheer every time and he played the game until flagged off at the end of the fifteenth lap, when he was running 8 minutes 54 seconds behind the American. The crowd would like to have seen Leland up near the front; in fact there would have been the greatest outburst of southern enthusiasm if he had been the first car to finish that ever was witnessed at a motor-ing event in the south. It must be added



JEFFERSON DE MONT THOMPSON, OF RACING
BOARD AND ASSISTANT STARTER REEVES

that according to Leland's own words the car had not received that attention before the race it should have, and that he was without factory assistance. His tire difficulties were very regrettable.

Features of the Contesting Cars

Of the thirteen cars that participated in the different events there was not one that did not conform in all details with stock

construction. All of them were not the chassis of touring cars—far from it. But the motorist of today is accustomed to seeing almost any kind of chassis and body lines for a roadster car. A few critics in the grand stand suggested that “such and such” was not a stock model, but this was disproved when the interpretation of the rules, which called for the manufacture of five similar cars of that type previous to February 1, 1908, was consulted. In the 342-mile event for cars with a piston displacement less than 575 cubic inches, the two Isotta Fraschinis with their big gasoline and oil tanks and racy lines looked very much like special racing cars, but it was demonstrated to the satisfaction of all that these cars had been manufactured in considerable numbers during the past year, and, like the Renault and one or two other foreign concerns that build racing runabouts, are in reality stock models, just as much so as the less racy roadster cars turned out by some of the American makers.

It is doubtful if the stock phase of the two Apperson Jackrabbits in this same race would not have been questioned if the race enthusiasts had not been aware of the fact that they had been regularly on the market for more than a year. Some question was raised as to the Lozier's eligibility, but Mr. Mead, the company's representative, certified that seven of these cars have been built. In the case of the three remaining cars in this event—the American roadster, the six-cylinder Acme and the four-cylinder Stearns—no question as to their right to contest was raised, their

CHALLENGE TROPHY RACE AT SAVANNAH, GA., THURSDAY, MARCH 19

Brakes		Gas Cap., Gals.	Oil Cap., Gals.	Ignition	Springs				Steering Gear		Wheel Bearings	
No.	Description				Front		Rear		Kind	Angle of Pillar	Front	Rear
					Length	Width	Length	Width				
4	Metal to metal Rear wheels	24	5	2 sets magneto and battery	40	2	48	2½	Worm and segment	45°	H-B	Ball Cup and cone
4	Cast iron against steel 2 rear wheels 2 jackshaft	42	11	1 set high tension magneto	33	1½	51	2	Worm and sector	35°	Annular Ball	Annular Ball
4	expanding on rear wheels	22	2	2 sets magneto and battery	39¾	1¾	47¾	2	Worm and nut	32°	Ball Cup and cone	Ball Cup and cone
4	Camel's hair 2 rear wheels 2 jackshaft	37	5	2 sets magneto and battery	38	1¾	47 40	2	Garford	31½°	Annular Ball	Annular Ball
4	Metal to metal Rear wheels	24	5	2 sets magneto and battery	40	2	48	2½	Worm and segment	45°	H-B	Ball Cup and cone
4	Cast iron against steel 2 rear wheels 2 jackshaft	42	11	1 set high tension magneto	33	1½	51	2	Worm and sector	35°	Annular Ball	Annular Ball
4	Steel against brass 1 set rear wheels 1 set jackshaft	23	1½	2 sets magneto and battery	41½	2½	52	2½	Worm and gear	40°	D. W. F.	D. W. F.
4	On rear wheels Expanding and band	23	¾	2 sets magneto and battery	44	2½	52	2½	Screw and nut	45°	Timken	Timken

IN THE TWO RACES AT SAVANNAH GA., WEDNESDAY, MARCH 18

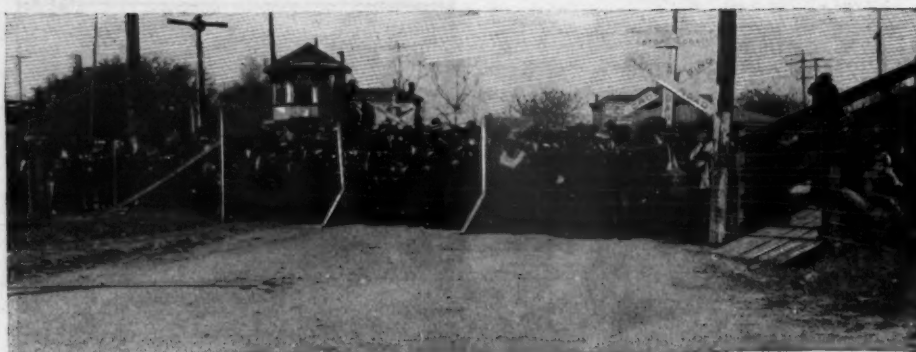
Brakes		Gas Cap., Gals.	Oil Cap., Gals.	Ignition	Springs				Steering Gear		Wheel Bearing	
No.	Description				Front		Rear		Kind	Angel of Pillar	Front	Rear
					Length	Width	Length	Width				
4	Camel's hair Rear wheels	22	¼	Bosch magneto One set of plugs	38	2	42½	2	Worm and nut	44°	Annular Ball	Annular Ball
4	Steel to steel Rear wheels	15	1	Two sets Bosch mag- neto and battery	40	2	48¾	2¼	Worm and segment	45°	H-B	Ball Cup and cone
4	Camel's hair Rear wheels	18	1½	Two sets battery and magneto	39½	2¼	53	2¼	Nut and segment	34½°	Timken	Timken
4	Steel and asbestos Rear wheels	22	2	Two sets Bosch magneto and At- water-Kent	40	2¼	54	2½	Worm and sector	40°	Timken	Standard Ball
4	Steel on brass Two jackshaft Two rear wheels	25	1	Two sets Bosch magneto Battery	40	2½	48	2½	Worm and gear	36°	D. W. F.	D. W. F.



ONE HUNDRED AND FIFTY SOLDIERS AND SIXTY POLICE GUARDED THE COURSE

lines being those of the standard touring car or roadster.

The winning Issota reached Savannah 2 days before its race, having been rushed out of customs at New York to take the place of Harding's Issota that was wrecked. Up to the time it reached Savannah its motor had not been turned over since leaving Italy, and Strang had not driven this make of car before that time. The car in the race, however, showed the careful working out it must have received before leaving the factory. The Issota has a high-speed engine of the four-cylinder type, with cylinders cast in pairs with opposite valves. When traveling on the course its motor turns over at 1,800 revolutions per minute, which speed is made possible by the use of exceedingly large flat-seated valves measuring $3\frac{1}{2}$ inches in diameter each. Also assisting in this high-speed work is the extremely light pistons, rendered so by perforations beneath the rings and the use of hollow connecting rods. The cylinders have a bore of 145 millimeters and a stroke of 120, equivalent to 5.7 and 4.7 inches respectively. Instead of using the double-ignition outfit employed on all of the other racers, only a single high-tension magneto outfit, with one set of plugs, is used, the plugs being carried horizontally in the intake valve chambers. In the clutch are fifty-one disks—twenty-five steel and twenty-six bronze. These cars on the course consumed a little more oil than the others, requiring all told 30 gallons each for the twenty laps, or close to a gallon and a half a lap. The car is supplied with two sets of brakes, cast-iron shoes operating against steel drums. The regular brakes on the jackshaft are



FENCE BUILT ACROSS ROAD LEADING ON TO THE COURSE

9-inch drums with 3-inch bands, whereas the rear wheel emergency brakes are $11\frac{1}{2}$ inch drums with 2-inch friction shoes. The car has a particularly large exhaust pipe, with a cutout opposite the center of the chassis.

Lytle's Apperson, which finished second, differs radically from the Issotas in that it uses separately-cast cylinders with opposite valves and has a bore of $5\frac{1}{2}$ inches and a stroke of 5 inches. While the Apperson cars do not use such large valves as the Issota, they always have been known to be among the largest made use of in this country, and also to be of the flat-seated type. The ignition employed is a double system, magneto and battery, with two sets of plugs, that for the magneto over the intake valves and the battery set over the exhaust valves. These cars have a wheelbase of $105\frac{1}{2}$ inches, which is 1 foot shorter than that used on the Issotas, and which assisted them not a little in making the turns.

Acme the Only Six

By finishing third, the six-cylinder Acme established itself as a prime favorite because of its consistent running, the majority of the spectators knowing it was going according to a pre-arranged schedule. It had the distinction of being the only six-cylinder car in the race and the regularity of its work pleased many. Its motor has six separately-cast cylinders of $4\frac{1}{2}$ -inch bore and 5-inch stroke, with intake and exhaust valves placed on opposite

sides. Its ignition system is a combined Eisemann high-tension magneto and a storage-battery outfit, with two sets of spark plugs, one set over the intake valves and the other over the exhaust. The lubrication system is confined to a 3-quart mechanical oiler on the dash, from which pass three leads to the three compartments of the crankcase. Its gasoline capacity is 23 gallons.

The 60-horsepower Lozier is a 1907 car and one that has been seen on the track in 24-hour races. Its external appearance is characterized by a very large cylindrical gasoline tank carried transversely behind the seat, two 5-gallon cylinder-shaped oil tanks carried from the frame at the sides, and its white finish. The car has four $5\frac{1}{2}$ by 6-inch cylinders, cast in pairs with opposite valves—typical Lozier construction. It uses a double system of ignition in which are used a Simms-Bosch magneto and a Witherbee storage cell, with two sets of plugs over the valves. Its oiling system is quite complete in that three leads connect with the crankshaft bearings and two with the crankcase. The right side oil tank carries a supply which is forced into the oiler by pressure, and the left-side tank is provided with a pump for injecting oil directly into the crankcase.

Of the remaining two cars, the Stearns and the American, it might be added that the Stearns is a 1908 four-cylinder car, the same as described last week in Motor Age. The American, while of the same design as the American roadster, familiarized to



NOT A SPECTATOR ON THE HOME STRETCH, NOR IN FRONT OF GRAND STAND



BEHIND THE FENCE ON THE HOMESTRETCH WITH ONE POLICEMAN ON DUTY

the public during the last year, has a larger motor, it being rated at 50 horsepower, and having four cylinders with $5\frac{1}{4}$ -inch bore and $5\frac{1}{2}$ -inch stroke. These cylinders are in pairs, with valves on the right, and take double sets of spark plugs for the magneto and storage-battery ignition system. The lubrication of the engine is cared for by a 6-pint oiler on the dash, with a 2-gallon auxiliary tank, carried on the chassis.

The Big Class Cars

The two cars that contested in the six-cylinder cup race on the first day were both 1908 six-cylinder machines—the Thomas carrying all the earmarks of the four-cylinder Thomas, and the Stearns having a similar relation to its four-cylinder brother. The winning Thomas has its six $5\frac{1}{2}$ by $5\frac{1}{2}$ -inch cylinders cast separately and provided with opposite valves. Its ignition doublet is a Bosch magneto and Atwater-Kent unit, taking its supply from dry cells. The car uses the three-disk clutch common to Thomas models and draws its gasoline from the standard tank beneath the driver's seat, although it carried a large barrel-shaped gasoline tank in the rear, which during the race was filled with water and aided the car considerably in holding the course. The Stearns six was one of the first the company turned out, and while its cylinders are the same castings as used on fours, yet its motor design is of the vintage of 1907 and not 1908 as was the case with the four-cylin-

der car. The other chassis lines were very similar to those employed in the four.

The Small Runabout Cars

The three cars which competed in the small runabout class, with piston displacement under 375 cubic inches, show widely different methods of construction. Lytle's winning Apperson has $4\frac{3}{4}$ by 5-inch cylinders, which are separate castings with opposite valves, the same as employed in the regular Apperson lines. Used on it is a double ignition, with Bosch magneto and storage battery, delivering current respectively to plugs over the intake and exhaust valves. Employed also is the standard band clutch and the three-speed selective gearset. Like the other two competitors in this event, the Thomas-Detroit and the Pennsylvania, it is a shaft-driven machine. The Thomas-Detroit, which finished second, uses $4\frac{3}{4}$ by $5\frac{1}{4}$ -inch cylinders, which are cast in pairs, and have sets of valves on the right side. Employed on them is a Bosch magneto. The Pennsylvania, which met with an accident in the second lap, is the only car in the three races to use a motor with valves in the cylinder head, as well as transmission incorporated with the rear axle.

Drivers' Instructions

No greater credit can be paid to the eight drivers of the race than that not one of them complained of the acts or omissions of the other seven. This may be partly due to the instructions given by Official Starter Fred Wagner the evening

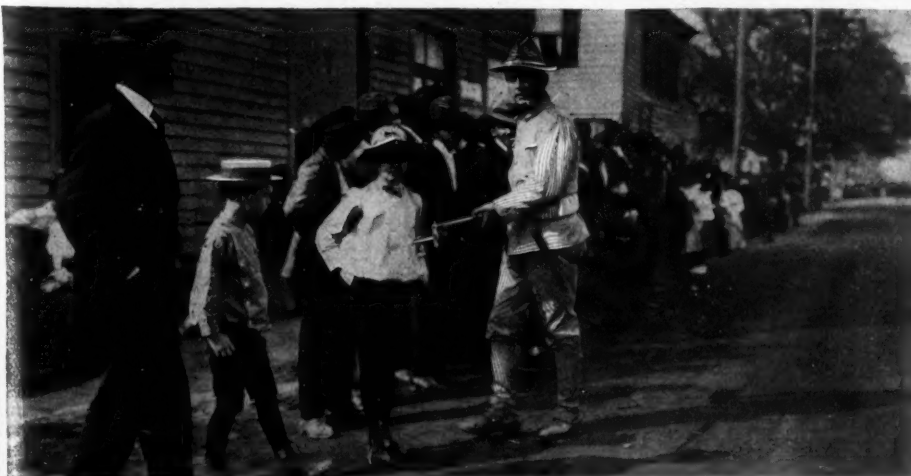


FIFTEEN TELEPHONES WERE LOCATED ON THE 17.1-MILE CIRCUIT

before the race, and which instructions included the following points: Keep to the right when passing; keep to the left when overtaking; red flag means "all right"; yellow flag means "danger"; green flag means "one more lap to go"; checkerboard flag means "you are finished"; contestants must heed signals of flagmen on every corner and stretch of the course; on seeing yellow flag displayed contestants must be ready to come to a full stop; cars must not carry any distinguishing mark other than the official number; and contestants must if possible give warning before passing another contestant.

Savannah's Good Work

The Savannah Automobile Club under President Frank C. Battay, Secretary Arthur W. Solomon and Treasurer Harvey Granger, was indefatigable from start to finish in the securing of entries, the procuring of a course and the general perfecting of arrangements. Added to these were the services of Albert Wyly, chairman, and A. B. Moore, vice-chairman of the Chatham road commissioners, to whose energy was due the oiling of the course, the banking of eight turns, the general improvement of the road surface and the building of 2 miles of shell road within the last 6 weeks for the use of the drivers. Also deserving of mention are Wright Hunter, president of the Cotton Exchange; President W. B. Stillwell, of the Board of Trade, and J. J. Raders, of the Cotton Exchange. Lastly comes the services of N. H. Van Sicklen, chairman of the Technical Board of the A. A. A., who for 3 weeks previous took up his residence in Savannah and assisted and superintended the work.



EACH SOLDIER WITH RIFLE AND FIXED BAYONET KEPT HIS BEAT CLEAR



Published Weekly
The Class Journal Company
1200 Michigan Avenue, Chicago
New York Office, Flatiron Building

MOTOR AGE

Entered as Second-Class Matter September 10, 1899, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879

Subscription Rates
United States and Mexico, per year, \$5.00 Other countries including Canada, \$5.00



SAVANNAH'S GOOD EXAMPLE



SAVANNAH has taken a premier place on the American map of motoring; in fact, has been placed second to none on the world's motoring chart. The running of the three races on its 17.1-mile course last Wednesday and Thursday was an object lesson to all America and particularly the north as to what can be done by way of keeping the crowds off a course while the race is in progress; as well as in the preparation of the course, the arrangement of accommodations and the general conduct of the event. With 150 state militia and sixty city police the entire circuit was as efficiently guarded as have been foreign circuits in which were employed seventeen times as many soldiers. At every turn was the man in khaki with rifle and fixed bayonet; each turn and stretch had its signal man with his "red" flag for a clear course and "yellow" flag for danger; each mile of the circuit had its roadside telephone in constant connection with the judges' stand; each crossroad had its entrance into the course well fenced off; half of the seventeen turns were banked on a big radius permitting of fast travel on them; each turn was signaled $\frac{1}{4}$ mile ahead by a big streamer across the road announcing it and diagrammatically showing its nature; every foot of the course was well oiled; starting, timing and other executive duties were excellently done; and nothing that occurred during the 2 days of the racing or previous to them provoked the shadow of criticism on the part of visitors who have witnessed the running of every road race in this country and many abroad.

The unanimous efforts of the Savannah Automobile Club, the city officials of Savannah, the Chatham county officers and the state officials up to Governor Hoke Smith were one in the promotion of the event. No side issues distracted the unity of the sole aim "to make the meet the most successful ever conducted"; and the harmony that prevailed in all departments of the work demonstrated how much truth is contained in the old adage of "union is strength." George W. Thiedeman, mayor of Savannah; Frank C. Battey, president of the Savannah Automobile Club; Harvey Granger, treasurer; Captain R. J. Davant, chairman, and Arthur W. Solomon, secretary of the Savannah race committee; Albert Wyly, chairman, and A. B. Moore, vice-chairman of Chatham county road commissioners, and Wright Hunter, W. B. Stillwell, J. J. Bauers and George Baldwin and Major Stevens, Savannah citizens,

were the local lights that carried the preparatory work to success; and to whom coupled with N. H. Van Sicklen, chairman of the Technical Board of the American Automobile Association, must be given all credit for the excellent arrangements and work. All credit to these men who have planted a fresh milestone in road racing in this country; all credit to the state and city that opened their doors to such enterprise, and all credit to the southern citizens who so ably assisted in the success of the event by entering their cars in all three of the races.

Now that it has been conclusively shown that the militia can be used in America as elsewhere to keep road courses clear; now that one state has shown how it is possible to close public roads from 7 in the morning until 5 in the afternoon; now that a local club has proven how it is possible for such an organization to make with the assistance of the national body all preparations for a big race there is little doubt but that road racing will rapidly develop in America as it has done abroad.

COMMERCIAL CAR PROGRESS



FOR 15 months there has been a conspicuous lull in the progress of the commercial car in America. This lull has been more apparent in the number of builders of pleasure cars who have incorporated within their sphere the business machine, rather than in the lack of active display on the part of makers who devote their exclusive energies to the production of the business wagon.

On the surface this may appear retrogression, but a closer view of the situation shows that the makers of pleasure cars have arrived at the conclusion that the building of a practical, serviceable, long-lived commercial car is different from that of a speedy light-weight pleasure car, and the several makers who thought nothing more was necessary in the commercial business than to gear down the pleasure car and have a little heavier axle and springs nearly all finished sadder but wiser men.

The development of a commercial car is fraught with as great difficulties as that of a pleasure machine, and wise are those makers who have built one or two machines and have tested them for a year or more before putting them before the public. The history of the last 2 years records the dire experiences of not a few concerns that jumped into the business wagon field with untried models, and the half dozen or more machines that they placed throughout the country proved "white elephants." Other pages of this history, during the same period, show how utterly foolish it is to attempt to commercialize a pleasure car.

The evolution and development of the commercial car business rests with the experimental, designing, laboratory departments of the factories, and only can it achieve success by following in the course marked out by the different stages of development in the pleasure car industry. This does not mean that constructions and designs will be the same, but the course followed will be.

With commercial cars the major problem has been tires; particularly was this the case with cars designed to carry $2\frac{1}{2}$ or 3-ton loads. So great in fact has been this question that at the present time one or two makers are withholding the marketing of large trucks until such time as the tire makers can satisfy them as to the possibility of providing tires capable of giving reasonable service. In lighter machines this tire trouble has been less to the fore but never the less a factor. Wood has been offered as a substitute for rubber, and while its wearing properties have satisfied the vibration consequent upon the use of wood has been such as to reduce the speed of the car, or work havoc with the machinery. This trouble can be easily rectified by improving the springs, which has already been done by a couple of makers. Next to tires and springs comes a strong yet sufficiently flexible running gear, with sufficiently stout transmission parts to stand the enormous strain that is met with in handling big loads on rough streets.



IN SAVANNAH RACE A SOLDIER AND FLAGMAN GUARDED EACH TURN



THE Associated Press is a powerful organization; no one will deny that, but it must be admitted that in the case of motoring it is too careful for its own good. It is afraid it might give some maker a little bit of free advertising if it should mention the name of a car in any of its dispatches, yet at the same time it will burden its wires with thousands of words on baseball games and horse racing. Of course, that isn't advertising those sports—the promoters are in the game simply for the fun of it—maybe. The weakness of the Associated Press along this line never was brought out more strongly than in the case of the recent Savannah races, and also in the New York-Paris contest. The readers of papers depending upon the Associated Press for their stories are told that Louis Strang's car won the big race at Savannah and that Herbert Lytle's car was second. Also in the New York-Paris race we are told the first French car is at one place and the second French car at another. Of course, the reader knows which car is first and which is second. In the motoring game it is the car and not the individual that is followed by the reading motorist, and if the Associated Press wishes to furnish news that will contain information of interest to its patrons it will have to come off its high horse and mention the names of cars. As well say John Drake's 3-year-old colt won the American Derby, without mentioning the name of the colt, as to say So-and-So's gasoline car won a certain event. It's

The Week in Brief



Five out of eight starters in big road race at Savannah finish, honors going to Isotta-Fraschini, driven by Louis Strang; Apperson, Acme, Lozier and other Isotta finish in order named.

Thomas car, American representative in New York-Paris race, reaches San Francisco Tuesday afternoon; it sails for Seattle Friday and will be in Alaska by April 6.

Hill-climb is held in connection with show week at Indianapolis, Stoddard-Dayton winning three out of five of the events; Bulck and Overland the other winners.

St. Louis prepares to make a bid for Vanderbilt cup race; tentative route is selected and a fund of \$25,000 to repair roads will be raised.

Studebaker, in race from Philadelphia to Savannah with Pullman, reaches Georgian metropolis first; protest filed by Pullman people.

All Europe watches Cadillac standardization tests held at Brooklands track, England; results bound to be beneficial to American trade.

Chicago and New York prepare for spring openings; Honolulu's floral parade offers suggestions for illuminated processions.



EUROPE'S MOTORING DOG

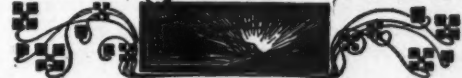
about time the editors of the Associated Press used a little horse sense in handling news. No one will make a fortune out of such advertising.

IT IS more than likely that the governor of Georgia, the Honorable Hoke Smith, is, first of all, something of a politician. First of all American governors, the Honorable Hoke attended a motor car road race, unashamed of being seen in the company of motorists, unafraid of the farmer vote—that bugaboo of the apprehensive applicant for ballots—and even adding to the enormity of his crime by issuing an order permitting the use of the state militia in the guarding of the course. True the thousands enjoyed the greatest spectacle of modern times, true that no one was injured by the motor-driven juggernauts (!), true that the attention of the whole country has been called to the fact that Georgia has roads good enough for the driving of motor cars over them at the highest rate of speed, and, finally, true that the enterprising city of Savannah has had its business progressiveness and charms widely advertised. Here's to the governor of Georgia, the mayor and the councilmen of Savannah, and the road commissioners of Chatham county! Though they shall have many imitators, their names belong indelibly inscribed at the head of the roll.

THE whole country will watch with interest the fight the Chicago Motor Club is making against the wheel tax which the city of Chicago wishes to collect for the purpose of spending the money on the maintenance of the roads. It is to be hoped the motorists will win their point and thus prove their double taxation contention, but at the same time it must be pointed out to the authorities that this fight is not being made because the owners of cars wish to avoid paying for the upkeep of the roads. It is not to escape such a worthy contribution that the legal battle is being waged. Instead, the motorists wish to protest against the discrimination which charges them twice as much as the owners of horse-drawn rigs are asked to pay. They want share and share alike. If the lawmakers had heeded their plea instead of "soaking" them because they owned cars and were supposed to have fat bank rolls there probably would not have been a soul protest against paying to keep the highway in condition.

MOTORING dogs there are a-plenty in this country, but so far the United States has been spared the spectacle of seeing the canines dressed in motor togery. However, they're not so particular on the other side of the Atlantic ocean and reports from abroad tell of the very latest ideas in the way of dog goods—goggles, blankets and the like. This is too much like making a farce of the sport and should not be tolerated.

Coming Motor Events



Canadian Shows—National motor car and sportsmen's exhibition in Toronto, March 21-28; third annual show in Montreal, April 4-11. R. M. Jaffray, Toronto.

Pittsburg Show—Automobile Dealers' Association of Pittsburg show. Duquesne garden, April 4 to 11.

Denver Show—Three-day show in Denver, April 6, 7 and 8; G. A. Wahlgreen.

Westchester Road Race—Stock car chassis road race in Westchester county, New York, for Briarcliff cup, April 24.

Targa Florio—Third annual Sicilian road race, May 10.

Chicago Hill-Climb—Chicago Motor Club's third annual hill-climb, May 15.

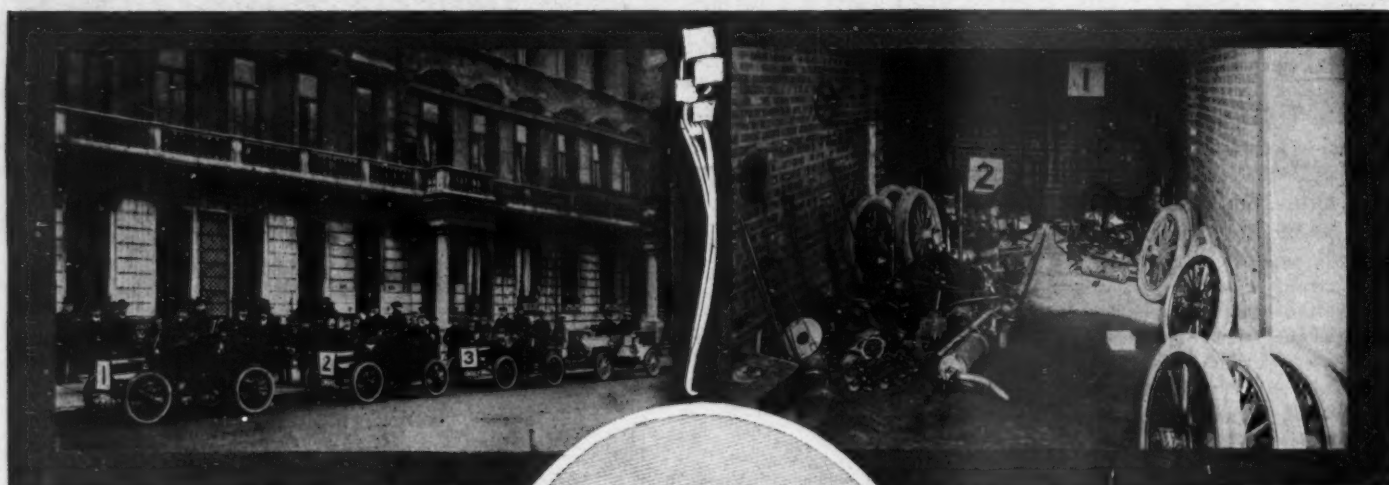
Chicago Reliability Contest—Twelve hundred mile 4-day contest Chicago Motor Club, June 24, 25, 26, 27.

Grand Prix—Third annual French grand prix, July 7 and 8.

Glidden Tour—Start of annual A. A. A. tour from Buffalo Wednesday, July 8; good roads convention preceding it July 6 and 7.

Chicago Economy Test—Third annual economy test of Chicago Motor Club, August 14.

EUROPE WATCHES STANDARDIZATION TEST



CADILLACS LINED UP IN FRONT OF ROYAL AUTOMOBILE CLUB

LONDON, Eng., March 7—The all-absorbing topic in British motordom at the present time is the Cadillac standardization test, which by the time these lines see print will have been completed. The test was commenced on February 29, when officials of the Royal Automobile Club selected from the stock of the Anglo-American Motor Co., British agent for the Cadillac, three of the 9-10-horsepower single-cylinder models, which were driven down to Brooklands and run ten times round the track at an average speed of about 28 miles per hour. The only mishap was caused by one of the cars jumping its offside rear spring, doubtless owing to the bad bumps which have developed on the course. This was soon remedied, however, and the proceedings continued without any further hitch. The three cars were then taken to pieces, the dismantling process being undertaken only by one man and his mate, continuing until Thursday, March 5, when the committee of the club mixed up all the parts until those belonging to one car were undistinguishable from those belonging to another. Subsequently sufficient parts were allotted for the rebuilding of the machines which started yesterday, March 6, the reassembling being completed by the evening, when on the first turn of the starting crank the car started running as though it had already been well tuned up and the parts run in.

This successful performance caused little short of amazement, and F. S. Bennett, the originator of the test, has received hearty congratulations on this satisfactory result. When the three cars are rebuilt they will be run at Brooklands for 500 miles, and their times compared with those made before dissembling. It is considered here that this test, if concluded successfully, as it seems it will do, will be the best advertisement for American cars they ever have had on this side of the Atlantic.

In connection with this test considerable criticism is heard of the treatment accord-



ON BROOKLANDS TRACK

ed the agent of the Cadillac by the technical committee of the Royal Automobile Club, which took the test so lightly that none of its members was present when the cars were dissembled, leaving that task to the club engineer and his assistant, both paid employees. This is declared to have been discourteous and likely to weaken the faith of the public in the demonstration. The club also came in for a raking over because of the shed used for the dissembling. Sand drifted in and covered the parts with grit. Connecting rod bearings and pistons were laid in the dirt, which in itself was liable to spoil the test in that a few ounces of sand, unless wiped off, might have spoiled everything. However, the three Cadillacs successfully withstood this test, and it is not doubted but what they will emerge from the affair with credit to themselves and their makers.

TOLEDO SHOW IS NOW ON

Toledo, O., March 24—At the Coliseum last night was begun the second annual show held by the Toledo dealers. All in all there are something more than fifty cars on exhibition, to say nothing of the accessories shown. A steady downfall of rain just at the wrong time aided materially in holding down the first night's attendance, but the fact that there were a great many out-of-town people there as well as a representative showing from Toledo argues a most successful show without any question. The White company

THE THREE CADILLACS DISSEMBLED UNDER COMMITTEE'S EYES

pulled off its usual stunt of dressing a beautiful girl in white and seating her, together with a footman, in one of the White steamers. The Central Carriage and Automobile Co., with the Maxwell and Mitchell lines, is showing the private car of Mrs. McLeod, whose husband is president of the Maxwell-Briscoe local company, because the factory could not get a model of this Maxwell ready for the show. One of the most pleasing features of the entire display is the decoration of flowers and palms which are artistically banked up and down the center aisle. These stately palms, with their bright green towering over the pale pink of myriads of hothouse plants, add to the beauty.

REGISTRATION SURPRISE

Indianapolis, Ind., March 23—There has been no little surprise among local owners and dealers to find there are fewer than 800 motor cars in use in this city, according to state registrations. Of the first 5,000 registrations under the recent registration act, just 794 of the number were from Indianapolis. While there are upward of 200 different makes in use in Indiana, there are only seventy-three of that number represented in the city. It is interesting to note that almost one-third of the machines owned here were manufactured in Indianapolis, the number of home-made cars being 242. In addition, out of the 794 motor cars, thirty-seven were made in Indiana factories outside of Indianapolis. Besides the seventy-three different makes there are twenty-nine cars in the city that are either unclassified or given as home-made. Of the 794 registrations, eighty-one are by physicians, while the number of commercial vehicles represented probably will reach fifty. Practically 80 per cent of commercial vehicles in use here are shown to have been manufactured outside of the city and state. In addition to the 794 motor cars, there are forty-three

motor cycles in the city, not including the one used by the police department. Of the motor cars, the Premier, with eighty-three, is best represented, while the others are as follows: Cadillac, 61; Pope-Waverley, National, 51 each; Ford, 48; Olds, 40; Maxwell, 37; Autocar, 32; Marmon, 31; Rambler, 28; Winton, 28; General Vehicle Equipment Co., 20; Stoddard-Dayton, 19; Buick, White, Mitchell, 14 each; Franklin, 11; Reo, Overland, 10 each; Pope-Toledo, Haynes, Queen, Lambert, Peerless and American, 8 each; Leader, 7; Haynes-Ap-person, Rapid, 6 each; Auburn, Knox, Marion, Thomas, Yale, 5 each; Columbia, 4.

ROADABILITY TEST PROPOSED

Philadelphia, Pa., March 23—The Quaker City Motor Club will continue its year's program, begun January 1, with its annual endurance run, with a roadability contest to be held on Saturday, April 11, from this city to Cape May. It will be a sealed orders run, and each driver will carry a sealed envelope on the outside of which will be marked the official starting time of the car, while inside will be miles-per-hour schedule officially adopted for the run by the contest committee. This envelope, still sealed, will be handed to the finish judge, who will mark the time of arrival of the car. No one except the referee will know what the official schedule time will be, and the first prize, a \$500 silver trophy, known as the Hotel Cape May cup, will be awarded to the driver who most closely approximates the official figures. Second and third cars will be awarded certificates and their drivers will be given medals by the club.

BUILDING THE MODEL ROAD

Cleveland, O., March 23—After months of preparation, the Cleveland Automobile Club finally commenced work this week on the building of its section of model road on the stretch of Euclid avenue east of Euclid village. A large force of men is at work now and as rapidly as possible the 3-mile stretch will be constructed.

BID MADE BY ST. LOUIS

Tentative Route Selected and Offered as Possible Vanderbilt Cup Race Circuit

St. Louis, Mo., March 23—Despite all the advertising Savannah got because of its tremendous success in running off the three stock car races last week, St. Louis, through the St. Louis Automobile Manufacturers and Dealers' Association and the Automobile Club of St. Louis, is determined to make a strong bid for the next Vanderbilt cup race. On the face of it, it might be thought St. Louis is greatly handicapped in that Savannah has so ably demonstrated its ability to handle a big road race and also has proved it has one of the finest courses in the world. But the St. Louisans are not discouraged and are quietly making their plans just the same.

With the Vanderbilt cup bee buzzing, representatives of the two local organizations have been canvassing the situation, with the result they believe they can put up a convincing argument before the racing board of the American Automobile Association. The roads hereabouts have been investigated and the subsequent figuring has shown it will take about \$25,000 to put the highways into proper shape for such a race. Still, this big sum has not scared the local people and they say they will raise the money easily.

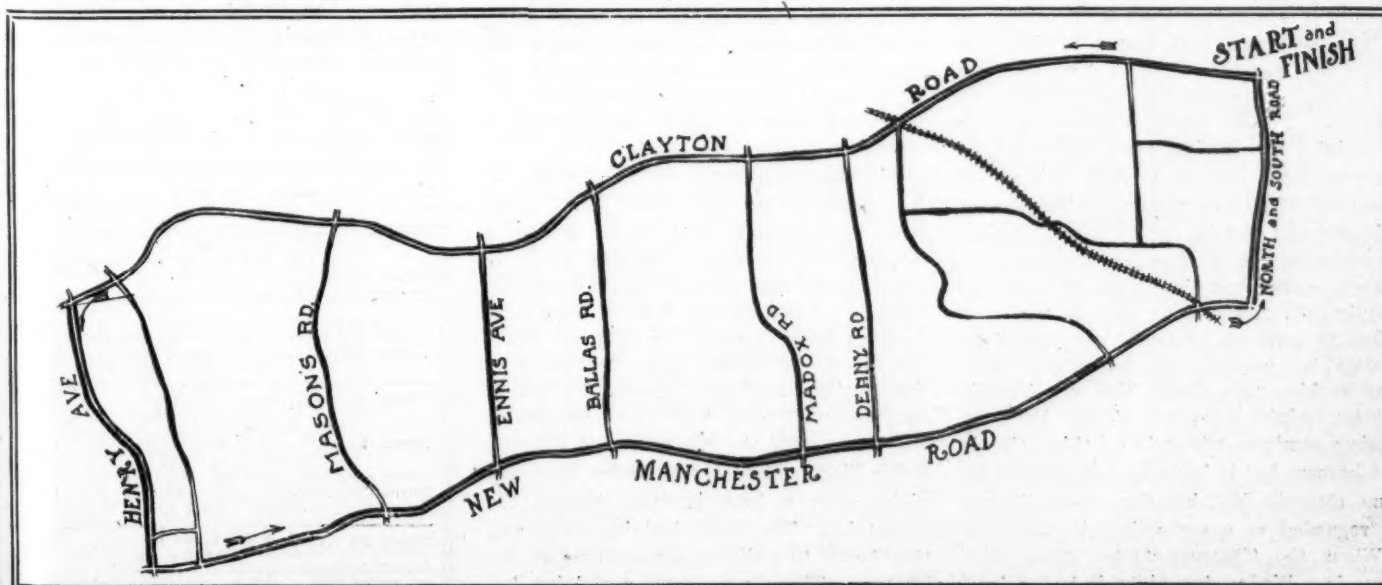
Scouting expeditions have been out of late looking for a suitable course, and while nothing definite has been arrived at as yet, still the scouts think they have a good circuit in sight. It is approximately 32 miles in length, starting on the Clayton road at the North and South road and running to Henry avenue, through the village of Manchester, thence back over Manchester road to the North and South road, and then to the starting point.

Although this expedition went out at the worst time of the year to find the roads in

condition, it is said the highways right now are capable of a speed of from 50 to 60 miles an hour and that with the expenditure of \$25,000 in fixing them up for the cup race, the Vanderbilt cars would be able to average from 65 to 75 miles an hour and at times and on some stretches reach 90 miles. Secretary Capen of the Automobile Club of St. Louis, who has been most active in this matter, points out that in summer the roads around St. Louis are packed down so the course would be lightning fast. He adds it is convenient of access from the city, the Rock Island railroad and the Clayton street trolley running near it. Capen says he has several influential members of the club backing him and that they are willing to finance the scheme to the limit. With such backing he declares he can offer the Vanderbilt cup commission a course which will compare with the best in the country.

DETROIT BILLS RELIABILITY RUN

Detroit, Mich., March 23—April 29 and 30 and May 1 are the dates selected for the first annual endurance run out of Detroit, and the novel feature of the contest is that the town marshals all along the 412 miles of the course will co-operate as officials. The rules governing the contest were agreed to on Saturday night by the endurance run committee, and this one is unique in all the annals of motoring: "Contestants must conform to all laws, ordinances and rules of the road, and any contestant violating any provision of these rules or who shall fail to show due consideration to the other participants on the tour or other users of the highway may be disqualified by the committee." The first day's run will be from the Pontchartrain at 8 a. m., Wednesday, April 29, to Saginaw, 130 miles. The next day the run is 139 miles, from Saginaw to Kalamazoo, and the third day, 143 miles, from Kalamazoo to Detroit. So far cars of the following makes have been entered, three, four or more of the various types.



MAP SHOWING TENTATIVE ROUTE SUGGESTED BY ST. LOUIS AS VANDERBILT CUP RACE CIRCUIT

THOMAS FIRST TO REACH 'FRISCO

American Representative in New York-Paris Race Crosses Continent in 42 Days—Will Sail Friday for Seattle and Expects To Be in Alaska April 6

Chicago, March 25—It took the Thomas car, the American representative in the New York-Paris race, 42 days and a few hours to cross the American continent in comparison with the 15-day mark established last summer by the Franklin. This gives one an idea of the rough voyage these globe-girdlers are having and makes one feel that after such experiences there is a possibility of one of the five cars will finally succeed in getting to Paris. The Thomas, the telegraph reports say, reached San Francisco at 3:37 o'clock yesterday afternoon, at which time it was 800 miles

making desperate endeavors to catch the American. Ahead of Brinker, who was at the wheel, having relieved Mathewson, was a 180-mile stretch to Goldfield, with a stiff climb. It took longer than expected to make the journey and it was 9:45 o'clock Saturday morning before the car got there, having been delayed in the desert by a broken part. The welcome Goldfield gave the leaders, though, was a warm one. It had been expected that the Thomas would reach 'Frisco Monday, it having been decided by Brinker to take the southern route, as the roads through the Sierra



STUDEBAKER, FIRST TO REACH SAVANNAH IN RACE FROM PHILADELPHIA

ahead of the Zust, which was at Ogden, Utah, being overhauled. The de Dion was closing on the German and stopped for the night at Church Buttes, Wyo., 134 miles behind. The German was 176 miles back of the de Dion. The Thomas will take the boat that sails Friday, catching another that leaves Seattle April 1, which gets it to Alaska by April 6.

Another angle was added to the race when the Motobloc reached San Francisco yesterday afternoon, 1 hour after the Thomas. The Motobloc, however, came in a freight car, having been shipped from Carroll, Iowa, because Godard claimed his spare parts had been shipped through by mistake and that he had to ship to 'Frisco to have the car overhauled. He asserts it was the understanding that all that was required in this country was to travel at least 12 days in order to test American roads; that he had done this and so there was nothing to prevent him shipping his car by freight if he wanted to. How the Paris committee will rule on this point is not known, but it is taken for granted by some that the Motobloc hereafter will not be regarded as a competitor in the race.

When the Thomas started from Ely, Nev., last Wednesday night it had a lead of 469 miles on the Zust, which had been

Nevadas were impassable. This made the journey 600 miles longer. Delays, however, stopped the car at Bakersfield. Brinker made the run through Death Valley and reached Mojave Sunday night unexpectedly, he having been expected to follow the Santa Fe and San Pedro lines. The last few days of the trip to 'Frisco were marked by comparatively easy going, with the Thomas being given rousing welcomes in each town it passed through. E. R. Thomas himself is now on the coast and welcomed Brinker upon his arrival in 'Frisco yesterday afternoon.

The Zust has had a thrilling week. It lost nearly 30 hours 4 miles west of Granger, Wyo., getting stuck in the mud at a washout. The Italian borrowed wrecking tackle from the railroad men and finally escaped. Near Spring Valley, Wyo., the Italians were pursued by wolves, which refused to be scared away by horns or lights. The foreigners opened fire and it was not until they had killed twenty of the brutes that the others turned tail and fled. Finally they got to Ogden Saturday night after a long journey through the mountains. The roads had improved and they hoped to make up some ground on the Thomas. There was some complaint because the Union Pacific refused to permit

the Zust to run over its right of way. The company explained this by saying the Thomas so damaged its roadbed it had to refuse the others permission to follow the tracks. The Italians left Ogden Monday but had to return to that place to make repairs. They are there still.

The Protos and de Dion battled their way through Nebraska, alternating pace, each striving to get away from the other. Finally the de Dion succeeded and beat the Protos to Cheyenne, at which time the Protos was at Ogallala, Neb. St. Chaffray pushed on and had a hard climb over the Rockies. The Protos crossed the divide Sunday, encountering a snow storm and on Tuesday started across Wyoming.

CLEVELAND BILLS A CLIMB

Cleveland, O., March 23—The Cleveland Automobile Club is making preparations for its annual hill-climbing contest, which this year will be held on Decoration day, May 30. It probably will be held on Stucky hill, the same as last year, although an effort may be made to induce residents along the Gates Mills hill to remove their objections to the use of this hill. The program will be similar to that of last year and will include displacement handicap events for various classes of cars followed by a final to decide on the winner of the four events. The final decision rests upon the speed figured with the weight of car plus driver and piston displacement per mile. In this way a single-cylinder car stands a fair chance of taking the trophy from a four or a six. The open events will be open to steam as well as gasoline cars and there will be a special event for electricies placed on the card.

LONG ROAD RACE FINISHED

Savannah, Ga., March 20—One of the interesting side lights of the big meet was the arrival of the Studebaker and Pullman, the two cars which raced here from Philadelphia and which had as strenuous a journey as did the New York-Parisers through Indiana. The Studebaker was first to arrive, getting in Wednesday, while the Pullman registered Thursday after having been on the road 14 days 5 hours 5 minutes. Claim now is made by the Pullman people that they are entitled to the race, the assertion being made that the Studebaker disregarded instructions. Also it is

DAY BY DAY PROGRESS OF CAM

Date	Thomas	Zust
March 19.....	Ely, Nev. 2,859 miles	Granger, Wyo. 2,390 miles
March 20.....	Ely, Nev. 2,859 miles	Evanston, Wyo. 2,460 miles
March 21.....	Beatty, Nev. 3,119 miles	Ogden, Utah 2,536 miles
March 22.....	Mojave, Cal. 3,451 miles	Ogden, Utah 2,536 miles
March 23.....	Fresno, Cal. 3,632 miles	Kelton, Utah 2,616 miles
March 24.....	San Francisco, Cal.	Kelton, Utah 2,616 miles

said the Studebaker took a route which cut off several hundred miles, that the observer was absent from the car the second day of the race and that a relay of drivers was used. Be that as it may, the struggle will go down in history as one of the hardest ever undertaken by motor cars and that both contestants should finish in such fine condition speaks well for their construction.

BANKRUPT PLANT IS SOLD

Kansas City, Mo., March 23—The buildings, grounds and machinery and all other assets of the bankrupt Kansas City Motor Car Co. in Sheffield were sold today by order of the United States court. The highest bid was by Charles S. Gill, of the Gill Adjustment Co., and was for \$47,000. Gill has office room with I. P. Ryland, trustee in bankruptcy, who made the sale. It is understood Gill represented F. E. Wear, president of the defunct concern, who several years ago sold the land upon which the plant stands to the motor car company for nearly \$60,000. Claims against the company amount to \$295,000 and with added expenses of administration creditors may realize 10 cents on the dollar. When the motor car company absorbed Caps Brothers, who had previously conducted a motor car factory, there was an agreement that a special fund should be set aside to meet the Caps' obligations, and the court sustained this agreement over the protests for the motor car company that it did not exist. The Caps' assets brought \$4,200, were bought in by the New England National Bank and will pay creditors about 30 cents on the dollar. Plans for the disposal of plant and machinery will not be announced until the sale is approved by the court.

ELECTION IN PHILADELPHIA

Philadelphia, Pa., March 23—The following officials will direct the destinies of the Automobile Club of Philadelphia during the ensuing twelve-month: Powell Evans, president; Stedman Bent, vice-president; S. Boyer Davis, secretary and counsel. Board of governors, term expiring march, 1900, Stedman Bent, S. Boyer Davis, George B. Linard and Isaac Starr; term expiring March, 1910, Henry P. Baily, Powell Evans, Jacob J. Leeds.

IN THE NEW YORK-PARIS RACE

De Dion	Protos	Motobloc
North Platte, Neb. 1,827 miles	Lexington, Neb. 1,767 miles	Shipped from Carroll, Ia. 1,439 miles
Cheyenne, Wyo. 2,052 miles	Ogallala, Neb. 1,878 miles	
Cheyenne, Wyo. 2,052 miles	Cheyenne, Wyo. 2,052 miles	
Rawlins, Wyo. 2,228 miles	Laramie, Wyo. 2,109 miles	
Rock Spr., Wyo. 2,345 miles	Laramie, Wyo. 2,109 miles	
Church Buttes, Wyo.	Rawlins, Wyo.	San Francisco by train

HOOSIERS IN A CLIMB

Stoddard-Dayton Car Wins Three Out of Five Events in the Indianapolis Contest

Indianapolis, Ind., March 24—Driving a Stoddard-Dayton stock touring car, Howard Hodson, of the Fisher Automobile Co., today won three of the five events in the hill-climbing contest. The contest was held on Michigan hill northwest of the city and was the first event of importance in the second annual motor car opening which is being held this week. There were forty-nine entries in the five events and hundreds of persons from all parts of the state witnessed them. The course was crowded and it was with difficulty that the hill was kept cleared for the contestants.

Prior to the contest the drivers of the

by Art Ferguson, won; time, :48 3-5. Ford, entered by Gibson Auto Co. and driven by J. Menthorn, second; time, :58.

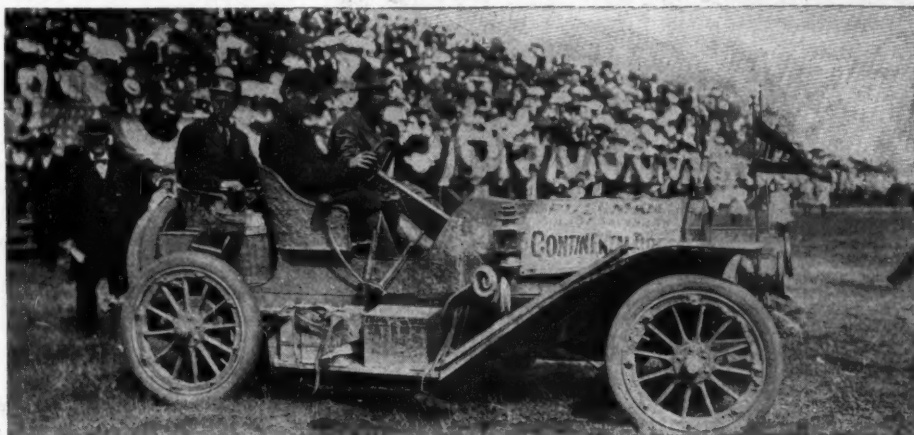
Event No. 2, cars listed between \$1,000 and \$1,800—Overland, entered by H. T. Hearsey Vehicle Co. and driven by C. F. Brockaway, won; time, :50 3-5. Ford, entered by Gibson Auto Co. and driven by C. E. Gibson, second; time, :51.

Event No. 3, cars listed between \$1,800 and \$2,750—Stoddard-Dayton, entered by Fisher Automobile Co. and driven by Howard Hodson, first; time, :38 4-5. Thomas Flyer, entered by Indiana Automobile Co. and driven by L. E. Finch, second; time, :40 4-5.

Event No. 4, cars listed between \$2,750 and \$3,500—Stoddard-Dayton, entered by Fisher Automobile Co. and driven by Hodson, won; time, :37 2-5. Thomas Flyer, entered by Indiana Automobile Co. and driven by Finch, and Premier, entered by Premier Motor Mfg. Co. and driven by Harry Hammond, tied for second; time, :40 4-5.

Event No. 5, cars listed above \$3,500—Stoddard-Dayton, entered by Fisher Automobile Co. and driven by Hodson, won; time, :39. Autocar, entered by Indiana Automobile Co. and driven by H. S. Wilcox, second; time, :39 2-5.

Under a ruling of the Indianapolis Automobile Trade Association cars were allowed to compete with those listed higher. Under this ruling the Stoddard-Dayton car was



PULLMAN CAR THAT RACED FROM PHILADELPHIA TO SAVANNAH

different entries held a parade, starting from the foot of the Soldiers' and Sailors' monument at 11 o'clock this morning. There was no delay in starting upon reaching the hill and the contestants ran up the ascent in as quick succession as possible. Michigan hill is 4-10-mile long and is about a 9 per cent grade. It is not as steep as would have been liked, but is the stiffest grade in this vicinity. By electric devices the time was taken accurately and there were no controversies during the events. Every dealer in the city and the most of the factories were represented, but there were only a few individual owners entered in the events. In addition the Columbia Electric Mfg. Co., of Knights-town, manufacturer of the Leader; the Model Automobile Co., of Peru, and the Rider-Lewis Motor Car Co., of Muncie, were represented in the various events.

In some of the contests there was only a fraction of a second difference between some of the contestants and some of the low-priced cars made some excellent records. Hodson, who drove the winning Stoddard-Dayton, was given an ovation after he had completed his third victory. The results of the events were as follows:

Event No. 1, cars listed at \$1,000 or under—Buick, entered by Bulck-Losey Co. and driven

permitted to compete in the two highest classes on the card.

The show opened auspiciously Monday with a large crowd of visitors in the city. Because of rain during the morning, the parade which was to have been held in the afternoon, was postponed until Wednesday afternoon. It is expected there will be between 200 and 300 cars in the parade. On Friday morning there will be an obstacle and novelty race on the Capitol avenue boulevard, for which there are about fifty entries. Show week will close Saturday evening with a supper and smoker given by the dealers at the Grand hotel.

WANTS A WEEK NEXT TIME

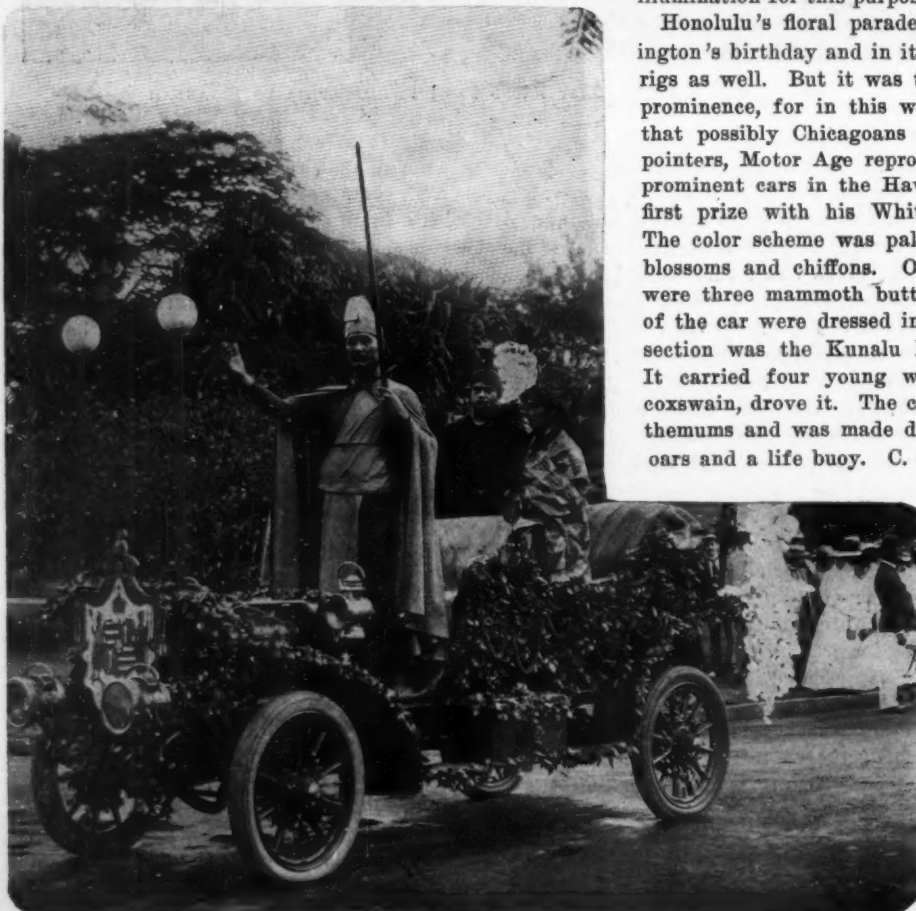
Rochester, N. Y., March 23—The Rochester show, which closed here last night, was a pronounced success. In fact, so successful has been the initial venture in the exhibition line in that city that tentative plans are being made for another year. It is proposed next year to devote a week to the show and to limit exhibitors to a certain number of cars, thus affording spectators more room for inspecting the exhibits. The average daily attendance at the show reached nearly the 6,000-mile mark, and the crowd was handled expeditiously. Several good sales were reported.



ALEXANDER YOUNG IN WHITE STEAMER THAT WON FIRST PRIZE IN TOURING CLASS IN HAWAIIAN PARADE



GOVERNOR FREAR IN PEERLESS TOURING CAR



CAR REPRESENTING HAWAII IN PARADE OF NATIONS

CHICAGO AND NEW YORK MAY

POSSIBILITIES in the way of illuminated parades of motor cars are just beginning to be realized by American promoters and the indications are there will be many in the United States before the year is out. Chicago starts in Saturday night, when there will be an illuminated parade under the auspices of the Chicago Automobile Trade Association, which will mark the opening of the spring carnival which will last through the following week. New York plans its effort for the night of April 7; the Hoosiers had their affair Wednesday afternoon during their outdoor show. It would seem, however, that the motoring fraternity of this country is but a novice in this game in comparison with the Hawaiians, who already have held parades of a gorgeous nature, as have the Californians. These, though, were daylight affairs in which the decorations consisted mainly of flowers. The Chicago and New York pageants will parade at night and the floral ideas will be accentuated by means of electricity, which will be called upon to furnish the illumination for this purpose.

Honolulu's floral parade, which is an annual affair, was held Washington's birthday and in it were not only motor cars but horse-drawn rigs as well. But it was the motor section that came into the greatest prominence, for in this were many beautiful turnouts. With the idea that possibly Chicagoans and New Yorkers can secure some valuable pointers, Motor Age reproduces photographs showing some of the most prominent cars in the Hawaiian affair. Alexander Young captured the first prize with his White steamer in the section for touring cars. The color scheme was pale blue and pink, worked out with hydrangea blossoms and chiffons. On the front of the car and poised for flight were three mammoth butterflies, glistening with tinsel. The occupants of the car were dressed in harmonizing colors. Another feature in this section was the Kunalu Boat Club's turnout, which won third prize. It carried four young women, and James McCandless, dressed as a coxswain, drove it. The car was decked with white and yellow chrysanthemums and was made distinctive through the use of a pair of racing oars and a life buoy. C. C. von Hamm, in an Autocar runabout, had his

machine decorated to represent a basket of violets. Mr. and Mrs. von Hamm were in white. This captured first prize in the runabout section. Governor W. F. Frear of Hawaii led the parade in a Peerless. He did not use flowers but depended upon bunting for his decorations, the Peerless being artistically draped in the national colors. An interesting part of the parade was a motor float representing the orient. It was a Chinese pleasure boat, dragon-headed, tinsel-finned and gaudily decorated with the gaudiness that remains artistic despite its riotous use of blues, crimsons and yellows. The occupants represented the imperial party and wore costumes to correspond with the mag-



KUNALU BOAT CLUB, ONE OF THE WINNERS



NERRY NAT AND HAPPY HOOLIGAN IN FORD RUNABOUT

GET IDEAS FROM HAWAIIANS

nificance of their turnout. All of them were Chinese. The Hawaiian national car was a White steamer and had on the front the coat of arms. Standing was a huge statue of Komehameha. There also was a prize for the most comical outfit and that went to the Cooke brothers, who had taken a Ford runabout and converted it into a tramp car. The occupants represented Nerry Nat and Happy Hooligan. Another car, that of Mrs. L. Abrams, represented a great shimmering bunch of California poppies, with Teddy bears perched on the radiator. The four women in the car were dressed in yellow of a shade corresponding exactly to that of the blossoms. This car won the pennant in class B.

Returning to this side of the Pacific, the Chicagoans have made elaborate arrangements for their spring carnival, with the parade, of course, the main feature. In addition to this they plan to have a novelty contest on the night of April 1, which will be in the nature of a gymkhana, and which will take place on Michigan avenue, running the length of the row. The next night there will be a tug of war between two motor trucks, with the Rapid and Meiselbach as probable competitors. During the week every store on the row will keep open until 10 o'clock at night and each place will be decorated with ferns. It is expected there will be 200 cars in the parade in competition for the three cups offered.

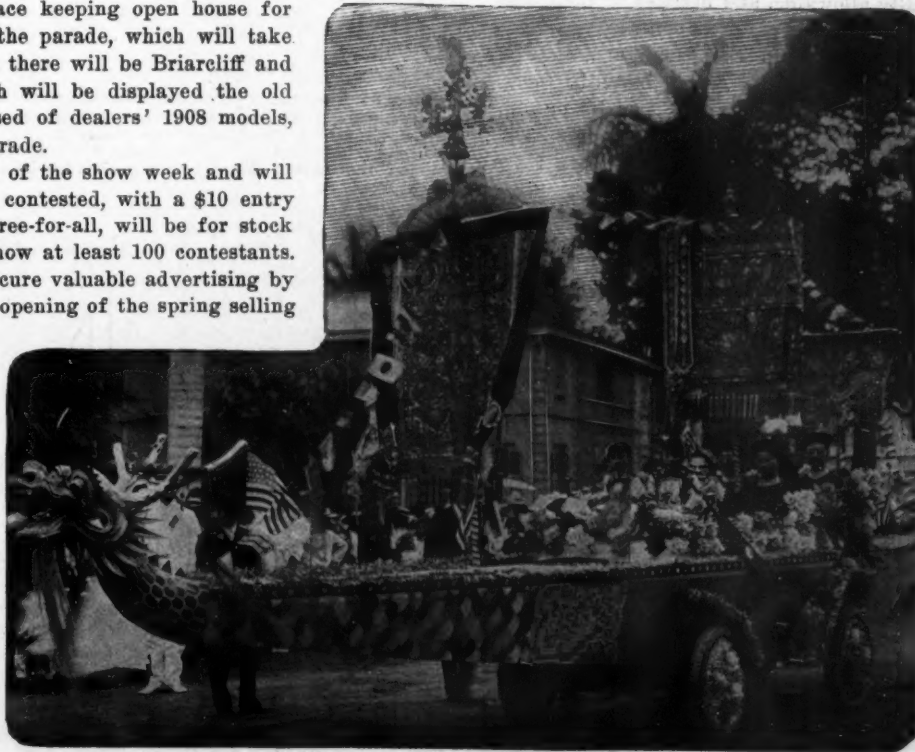
The New York affair will be just as elaborate, with the show week opening the night of April 6, and each place keeping open house for the week. There will be four divisions in the parade, which will take place the second night. In the first division there will be Briarcliff and Vanderbilt cup cars and a section in which will be displayed the old timers. The second division will be composed of dealers' 1908 models, expected there will be 200 cars in the parade.

The Fort George hill-climb will be a part of the show week and will be held April 9. There will be nine events contested, with a \$10 entry fee for each event. All these, except the free-for-all, will be for stock cars and it is expected the entry list will show at least 100 contestants. This tendency on the part of the trade to secure valuable advertising by means of so-called show weeks, marking the opening of the spring selling season, is one that is growing and which will become even more popular should New York and Chicago score the expected successes.

Of course, the dealers themselves are called upon to do considerable work in connection with these events; but in the end they are well repaid for their trouble. Such shows undoubtedly arouse enthusiasm among the prospectives who have delayed placing orders and are waiting for warm weather. But to make them successful requires the hearty co-operation of everyone in the trade. Chicago and New York are determined to score successes.

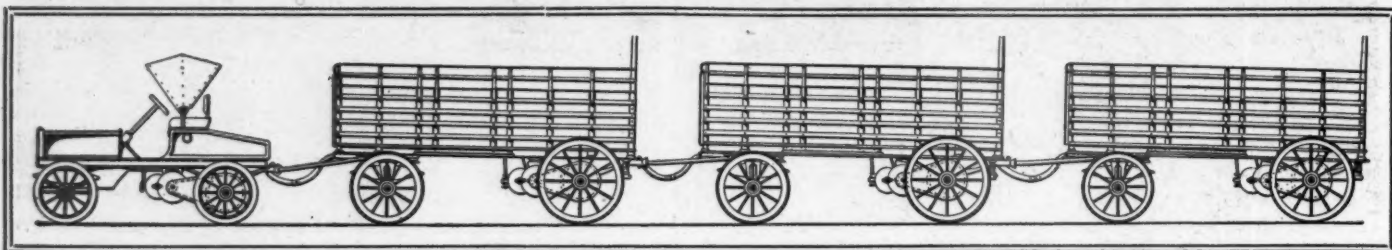


AUTOCAR AS BASKET OF VIOLETS



CHINESE PLEASURE BOAT IN HAWAIIAN FLORAL PARADE

MULTIPLE UNIT SYSTEM IN ROAD HAULAGE



ILLUSTRATING HOW A TRAIN SYSTEM OF CARS CAN BE PROPELLED BY ELECTRIC MOTORS ON EACH VEHICLE

WITHIN the past few years it has been proven by users in general that, aside from the advertising value of commercial motor cars, which exists in few cases at present, the employment of trucks of over 6,000 pounds load capacity is not as profitable as the employment of smaller vehicles. The rapid depreciation of the rubber tires in general use, and of the power-generating apparatus, necessitating frequent repairs and replacements, are the chief reasons for the above state of affairs.

A few vehicle manufacturers and users have attempted to solve the problem of expensive tire renewals by the use of various types of wooden and combination tires, and the use of resilient wheels. However, considering that by far the greater number of commercial cars of all types are still using and being equipped with rubber tires of the same general type used for the past 8 or 10 years, it seems that solid rubber tires, expensive as they are in all respects when used on large vehicles, are at present the most satisfactory solution of the problem. An objection to fabric and wooden tires is that, while they perform the work required of them, they disintegrate more rapidly than is commercially allowable, and because of their comparatively non-resilient materials, the tires become loose in the fastenings securing them to the wheels. The inability to absorb the rapid blows produced by encountering small inequalities of the road surface also counts seriously against these kinds of tires.

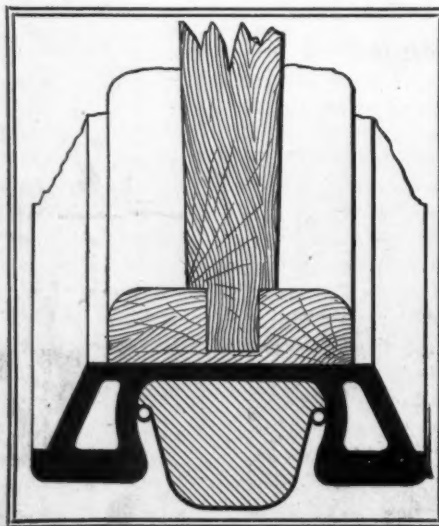
Various forms of combination tires, such as an outer solid tire of a comparatively tough material, which rests upon a pneumatic or spring cushioned part, and spring wheels of various types have been tried, but, as stated above, the old style solid rubber tire is still the most satisfactory. A form of composite tire is illustrated. This tire was tried for a while on a 5-ton brewery truck, but failed because the parts were not properly proportioned. It consists of a solid rubber tire of the usual form, capable of carrying about one-half the total weight on the wheels. This tire is placed centrally between two steel tires designed to slightly more than carry the balance of the weight. The rubber tire is intended as the traction furnishing and resilient member because it projects slightly beyond the steel tires. The steel tires will protect the rubber when additional loading

of same would be injurious. For instance, when crossing a street car track with the ordinary rubber tire the pressure is concentrated on a small section of the tire with occasional injurious results. In fact, in the majority of cases with large vehicles, the tires are seldom considered worn out because the tire has been worn down to a small cross-section, but because the tire has been split in places and chunks of rubber have been cut out, or the fastening is no longer secure. The steel tires in combination with the rubber should not permit this to occur. However, in my estimation, it will require a long time and the expenditure of a large sum of money to develop a thoroughly commercial tire for a vehicle exceeding 3 tons load capacity.

Another objection to the use of large trucks is their inability to exert sufficient tractive effort under all conditions of loading and road surface. As a remedy, some manufacturers furnish sand boxes for delivering sand under the driving wheels, as in railroad practice, while others endeavor to overcome this difficulty by driving all four wheels. The first method is an unsatisfactory makeshift, while the latter necessitates expensive complication of the propelling and steering mechanisms, with the extra weight of these parts assisting depreciation.

The six-wheel vehicle is a step in the

EDITOR'S NOTE:—This Article on "A Multiple Unit System as a Solution of the Heavy Goods Transportation Problem" was Delivered by Joseph Anglada Before the Society of the Automobile Engineers.



COMBINATION RUBBER AND STEEL TRUCK TIRE

right direction, but the complication inseparable from this arrangement and the expense of building and maintaining this complicated construction detracts seriously from the attractiveness of the six-wheel proposition. Unless at least four wheels are driven, the traction disadvantages of the two-wheel drive are always present.

The system employing a tractor and trailers is used abroad to some extent, and has the advantage of distributing the load on a number of wheels. But the objectionable feature of having but one pair of driving wheels counts seriously against the system; because, unless the driving wheels are provided with cleats to assist propulsion, it is impossible to haul a paying load at all times, and even with cleats the above is not possible if the road has deep sand or mud upon it. The use of cleats is objectionable because they cause the load on the driving wheels to be concentrated on comparatively small areas of the road surface, causing it to deteriorate rapidly.

Colonel Renard realized the shortcomings of the above system when he developed the road-train system which bears his name, and has been described and illustrated in detail in *Motor Age*. It consists of a train of vehicles, the leading vehicle having mounted upon it the power-generating, speed-controlling and steering apparatus. A shaft arranged with the proper number of universal and slip joints extends throughout the length of the train and transmits the power for propulsion to the driving wheels of each vehicle. In it rubber tires are not necessary, because sufficient tractive effort is obtained by the increased number of propelling members. Steel tires may be used on the trailing vehicles because there is no mechanism except the comparatively simple propelling and steering apparatus mounted on them, and on the leading or power-furnishing vehicle rubber tires are allowable, because in no case should the weight of the vehicle complete with apparatus weigh more than 3 tons. It seems after studying the Renard system that its advantages may be retained and the complication of the power-transmitting and controlling apparatus reduced and these parts made more efficient by the use of the system shown herewith.

The leading vehicle has mounted upon it the steering and control apparatus, a

source of motive power, storage battery, steam or internal combustion motor, but preferably the latter, on account of its simplicity and small weight per horsepower. The motor is coupled to an electric generator which furnishes current to a pair of electric motors on each vehicle. The vehicles are connected by means of a bar which transmits the steering effort from the drawhead at the rear of the leading vehicle to the front axle of each following vehicle. The length of this bar and the position of the front axle are so determined in reference to the rear axle of the leading vehicle that the entire train follows the same course when turning. The vehicles are also connected by flexible electric conductors, arranged so as to be readily connected or disconnected when it is desired to place a vehicle in or out of the train.

Three methods of control suggest themselves: First, the ordinary method of operating the internal combustion motor at a constant speed to obtain a constant voltage at the generator, and then, by means of a series-parallel controller, connecting the fields and armatures of the motors in various combinations, virtually as done in street car and electric train service.

Second, a method in which by varying the speed of the generator its voltage is varied correspondingly, causing a proportional current to flow through the motors, making their speed and torque vary.

Third, a method whereby varying the voltage of the generator, by changing its field excitation, its speed meanwhile remaining constant, causes an effect similar to that of the foregoing method. It would probably be found advisable to obtain the field current for the generator from an exciter mounted on the end of the main generator shaft, to save weight, and having its output controlled by the driver of the train.

With the two latter methods, it would also be found advisable to provide a switch for connecting the two motors on each vehicle in series combination for climbing grades and for starting when the train was fully



loaded. This switch could also be used for reversing the direction of rotation of the vehicle motors.

The generator should be designed to furnish a direct current at 220 volts and the windings should be so arranged that when the output of the generator nearly equaled the output of the gas motor, the voltage of the generator would decrease and thus decrease the current flowing to the vehicle motors. This feature, while not absolutely necessary, is desirable because at no time is it possible to overload and stall the gas motor by careless operating. For instance, consider that the motors of the train, which are 220-volt direct-current series motors, are operating in multiple combination, and that the train approaches a grade which requires more power than the gas motor can furnish to the motors in multiple combination. The generator voltage would decrease and thus prevent the vehicle motors and the gas motor from being overloaded, and if the driver should persist in not operating the switch to connect the vehicle motors in series combination, the train would come to a standstill if the power required was greatly in excess of what the gas motor can supply. It is seen that by connecting the vehicle motors in series combination the effect of changing to a lower gear of about twice the reduction is obtained with a corresponding drop in speed and increase of torque.

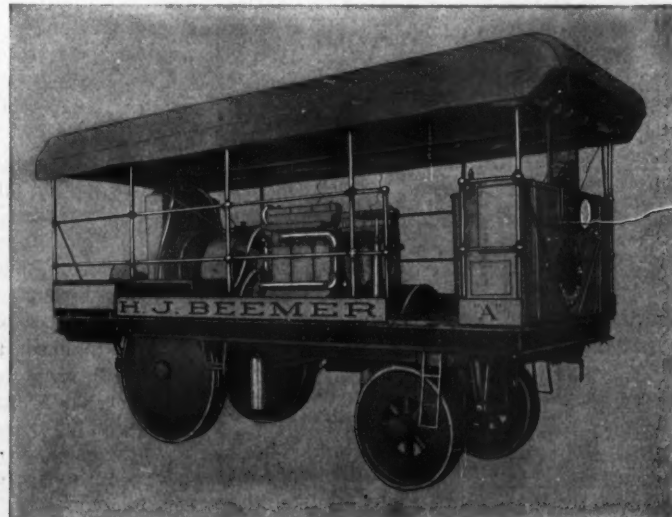
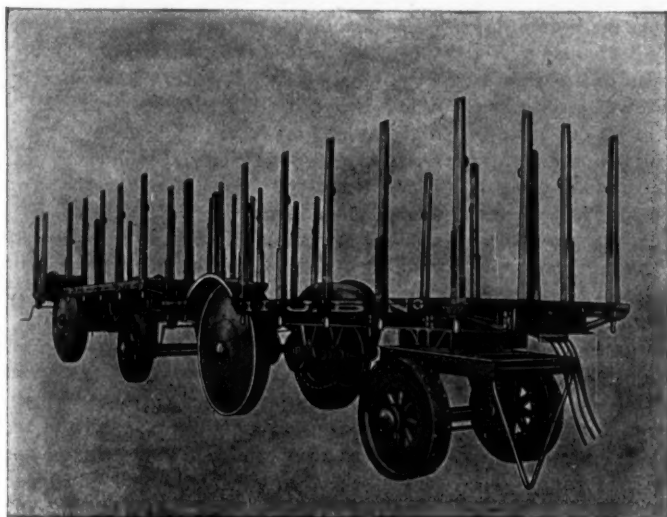
It is generally known that in the existing types of electric commercial vehicles the chief, and, in fact, generally the only feature which prevents them from being ideal is the battery. The motor rarely, if ever, give trouble and requires little attention; therefore, it seems that, with the exception of the generator, the reliability of which is beyond suspicion, the only other parts of the electric system which might give trouble are the conductors car-

rying the current to the motors and the controller, of whatever type it may be.

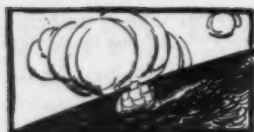
The train would not weigh more than a train equipped with an entirely mechanical transmission, and would not cost so much to build. It would operate more efficiently and the cost of maintenance would be less.

In this country multiple unit road trains have been constructed by the Gibbs Engineering and Mfg. Co. and Alden Sampson. The first Gibbs train consisted of a power wagon and two trail wagons. The power wagon had mounted upon it a three-cylinder gasoline engine direct connected to a generator furnishing power to motors driving the rear wheels of all of the vehicles. The leading vehicle was equipped with solid rubber tires and the trailers had iron tires. The speed of the train was regulated by a two-motor street car type controller so modified that by operating the drum intended for reversing the car motors, the vehicle motors, which were regular series wound electric vehicle motors, would be connected in series or multiple combination. The main drum of the controller was used to connect resistance in or out of the motor circuit.

The second Gibbs train consists of a power wagon and four trailers. The power wagon has mounted upon it two three-cylinder gasoline engines driving a double commutator generator through positive clutches on the engine shafts and Morse chains. The rear wheels of all of the vehicles are driven by series motors through gearing and roller chains. The road wheels are steel disks flanged at the outer circumference. The disks are riveted to bronze bushed steel hubs and steel tires 8 inches broad. Speed regulation is obtained by means of a controller similar to the one used on the first train, with the exception that the controller drum generally used for reversing the car motors is in this case used to connect the two windings on the armature of the generator in series or parallel. The main drum of the controller is used to connect resistance in or out of the motor circuit. Each vehicle has a switch for reversing the motors.



TWO OF THE GIBBS' ELECTRIC TRACTORS AND THE GASOLINE-ELECTRIC POWER WAGON



From the Four Winds

N S E W



Prize for Strang—Louis Strang, who drove the Isotta at Savannah, captured the \$200 prize offered by the Michelin Tire Co., as his car was equipped with Michelin compressed tread tires.

Easy Reliability—A reliability run is now being arranged by the Beloit Automobile Club of Beloit, Wis. The start will be at the corner of East Grand and Prairie avenues, and will cover all of the paved streets of the city.

Tough Luck for Glidden—For the second time within a couple of months property belonging to Charles J. Glidden was destroyed in Lowell, Mass. When Mr. Glidden began to amass wealth he invested it in real estate in Lowell. A few weeks ago a garage there was burned and the adjoining property owned by Mr. Glidden was also burned out. Last week there was another fire in a big machine plant there, and some dwelling houses near by, owned by Mr. Glidden, caught and were burned. They were fully insured.

Another Demonstration—That the motor car is the proper thing for inspecting streets and alleys, not to speak of a hundred and one other things, was amply demonstrated in Milwaukee last week, when a party of the Brewery City aldermen covered more than 40 miles of streets in 3 hours 45 minutes. This is considered remarkable, for the three cars encountered roads that were foot-deep with mud. The aldermanic party found the complaints of Milwaukee motorists on the conditions of some of the streets are founded on fact. About \$250,000 has been set aside for street improvements. The 40 miles covered is only part of the street distance that will be viewed. Usually it has taken a party 2 days to cover the same ground in a less thorough manner as did the party in less than 4 hours.

Glidden's Progress—Word has been received in Boston that Mr. and Mrs. Charles J. Glidden have completed their tour of Egypt that was started February 13, the travelers having added 640 miles to their total on the run there. This makes their total mileage 43,007 miles in thirty-six countries. Mr. Glidden writes that the roads in Egypt are limited, but good, the longest continuous drive being 60 miles from a point in the desert east of Cairo through that city to the Pyramids. They have gone to Syria and were the first to tour with their motor car through the Holy Land. Their objective points included Jerusalem, Bethlehem, Jericho, the Jordan, Dead Sea, Sea of Gallilee, Damascus and Beyrout. Three permits issued by the governors of the country with the knowledge of the sultan of Turkey were necessary to travel in Syria. These permits Mr. Glidden secured through the office of the secretary of state

at Washington after about 2 years of corresponding, as the sultan at first was opposed to any one driving a motor car through the country, particularly a foreigner.

Wausau's Strength—Wausau, Wis., is a city that is filled with motor enthusiasm and with the opening of summer there are to be fifty-one cars in the city, one for every 300 inhabitants. Last year there were only thirty-five in the city. The metropolitan city of Chicago has only one car to every 450 people, according to the report of the assessor.

President Thanks Quakers—In reply to its offer to organize an emergency motor corps, to serve whenever and wherever desired by the national government in case of insurrection or foreign invasion, the secretary of the Quaker City Motor Club on Thursday last received from Robert Shaw Oliver, assistant secretary of war, the official "appreciation of the president and the war department of your patriotic action in this matter," and an assurance that "should an emergency of the nature indicated in your preamble arise, the generous offer of your club will be borne in mind by the government."

Three-Miles-a-Minute Racer—A racing car capable of a speed of a mile in 20 seconds, or 3 miles a minute, and absolutely non-capsizable while in motion is said to have been offered to Harry Levey, of New York, owner of the Hotchkiss racer entered in the recent Ormond meet. This new speedster, the designer told Levey, differs in appearance from others only in that it has a slightly longer wheelbase and hood. Beneath the hood, just behind the radiator, are two large gyroscopes gear-driven by a separate magneto. The rapidity of their revolutions being determined by those of the engine, the equilibrium of the car is maintained with absolute exactness at any speed, the designer says. Over a straightaway course the gyroscopes would revolve in the same direction. On a circular track or curved course they will revolve in opposite directions. Indeed, the enthusiast insists, it would be quite possible to run the car on two wheels, one fore and one aft, but to do so would necessitate a more radical departure from a present-day motor construction, and an entirely new transmission system. "The speed is a mere matter of bore, stroke and number of cylinders, and once it is made impossible to upset the car or to deflect it from its course by skidding—simply by removing the ability to skid—it is not so difficult to clip seconds from mile record," declares the designer, who asks Levey for \$45,000 with which to build the 3-mile-a-minute car. Mr. Levey has accepted the price with an added offer of \$1,000 more for each

second below the 20 seconds mark, but insists on a bond guaranteeing the return of his money should the car when built not be as fast as its sponsor promises. The inventor is looking for the bond.

Snow Bird in Chicago—G. A. Hill, driving the Thomas-Detroit Snow Bird, the car which is being driven 3,000 miles on the high gear only, reached Chicago last Saturday, having completed two-thirds of his journey.

Brooklands Innovation—This year the Brooklands motor track will be graced by the presence of amateur drivers. The club is sending to all its amateur members a letter expounding the scheme of registration. No member of the trade may be enrolled on the register, and candidates will have to satisfy the committee as to their eligibility in this respect. A private competitor may not drive a car belonging directly or indirectly to a member of the trade, neither may he receive any fee or remuneration for his services. Private competitors may race in other races than those open only for them, but as a trade driver may not race in the private class.

Road Brushes in East—There was a race pulled off on the state highway near Boston a few days ago that resulted from talk of the merits of cars at the motor show just closed. W. A. Fredericks, of the American, and James MacKinney, of the Peerless, figured in it. A wage of \$300 a side had been made and the two cars were taken out and raced over a 1-mile course. The cars raced from a standing start and the Peerless got away first and won the race. There was more talk and a second race for a smaller sum then followed. Again the Peerless won. The American had trouble with a loose gasket and its owner is now seeking a third match and there is a possibility of others entering, it is said.

Kicks at Broad Street Paving—The good roads committee of the Quaker City Motor Club, Edwin H. Lewis, chairman, has filed a protest against the conditions existing along Broad street, Philadelphia's crack highway and traversed by more motor cars than any thoroughfare of similar length in the country. Not alone has that portion of the street around the city hall been allowed to remain for a year or more in a condition that would be a disgrace to a country village, but the numerous trolley track crossings have been allowed to deteriorate until now the majority of them are sunken several inches below the street surface. Chairman Lewis also has directed the attention of the authorities to the conditions existing on the hump over the tracks of the Reading at Huntingdon street. He urges the city to accommodate motor and other travel, as it did bicyclists

10 or more years ago—either by widening the asphalt strips laid for the latter on either side of the street or by laying down a wide strip in the center.

Run to Many Makes—Chippewa Falls, Wis., has many styles of motor cars in the city. An investigation shows there are now twenty-seven cars in the city, one to every 370 persons, and some fourteen different makes are represented. The outlook at present is that the number of machines in the city is to be greatly increased this summer and already a number of new cars have made their appearance there.

Another Badger Run—Another reliability run is being planned by Milwaukee and definite plans will soon be arranged by the Milwaukee Automobile Trade Association. The run will be held early in the summer and the goal will be Wausau, Wis., the home of President Neal Brown of the Wisconsin State Automobile Association. It is understood the test will cover several trips between the two cities and each run will be held under varying weather conditions.

Settling Labor Disputes—Manufacturers of motor cars and those in allied industries will be interested to learn there are before the judiciary committee of the two houses of congress nine bills which have for their purpose the prohibition of limitation of injunctions or restraining orders in labor disputes. In this connection it is also interesting to note that the National Paint, Oil and Varnish Association, through the chairman of its legislative committee, protested against the bills.

Hub Entries for Glidden—It looks now as if Boston will be well represented this year in the Glidden tour. Frank E. Wing is going to drive a Marmon car in it as a representative of the Bay State A. A., and there is a possibility of a second Marmon driven by Howard Marmon competing under the same colors. J. W. McGuire is to drive a Pierce in the runabout class and Lucius Tyler is another probable entry with a Maxwell. Watson Coleman may also be in it with a White and W. E. Wright, of Springfield, wants to go again in a Knox. Wing, Coleman, Wright and Tyler are all veterans of former tours.

Club in Spokane—The Spokane Motor Club was formally organized in the assembly room of the Spokane chamber of commerce the evening of March 19 with fifty names enrolled and these officers: President, H. Louis Schermerhorn; vice-president, O. B. Setters; secretary-treasurer, Lawrence Jack; trustees, H. L. Lillenthal, John Sengfelder and the executive officers. While it is purposed eventually to establish a clubhouse at one of the nearby lakes, the primary objects of the organization are the building of good roads in county and state, securing needed city legislation and such other matters of interest to the man behind the steering wheel. The entrance fees and dues for the first year

will be expended in erecting signboards on the various county roads out of Spokane, and efforts will be made to have the city authorities level the street crossings and make other repairs.

New Club in Reading—Reading, Pa., has just launched its first motoring organization under the title of the Reading Motor Club. Those at the head of the movement include Guy Britton, Paul A. Flickinger, Edward Dives, Harry Britton, George Lance, Raymond Duppel, C. L. Hoffa, Leinbach Rieser, Arthur Dives, Earl Biehl, Charles Lutz and J. D. Hoffa. The first effort of the new organization will be the securing of a suitable clubhouse.

Railroad Capitulates—The use of the gasoline motor cars on the short railway lines in Wisconsin is becoming extensive and practical. The state railway commission has reported favorably on the use of the cars and in the investigation that it carried on in regard to the use of the cars on the line of the Illinois Central, between Freeport, Ill., and Madison, Wis., it was found that such service was reasonably safe, comfortable and adequate. The Northwestern line is experimenting on some of its shorter branches within the state in regard to the motor cars, and are finding the results to be very favorable to the company and to the traveling public. The Wisconsin Central line is planning at the present time to use the motor type on the run between the cities of Neenah and Manitowoc, Wis.

Motor Corps Offered—In behalf of the Automobile Club of Maryland, Delegate Carr, of Baltimore city, introduced a resolution in the house of delegates, recommending that congress organize, arm and discipline a volunteer motor corps throughout the country as a part of the regularly organized militia of the several states. The recommendation also suggests that the state of Maryland encourage the formation of such a corps as a part of the state militia, the corps to be part of the First Brigade of the Maryland National Guard. In the resolution the club tenders to both federal and state governments the services of so many of its members and their cars as may be necessary for the organization of a volunteer motor corps of this state in the event of the adoption by congress and the Maryland legislature of the club's recommendations. In case the recommendations are not adopted and a volunteer motor corps be precluded from becoming a branch of the state militia, the club agrees to enroll from among its members a sufficient number of capable and able-bodied men who will agree to act as a volunteer motor corps, and offers its services and motor cars free to the city of Baltimore, the state of Maryland and the United States gov-

ernment as an auxiliary force, to serve in all cases of "urgent need or dire necessity for the suppression of lawlessness and insurrection or in the graver duty of repulsing foreign invasion in time of war."

Enters 2,000-Mile Trial—Thirteen entries have so far been received for the Royal Automobile Club's 2,000-mile international trial, consisting of the following cars: A 10-12-horsepower Coventry Humber, 15-horsepower Coventry Humber, two six-cylinder Napier, two six-cylinder Rolls-Royce, two de Dion-Boutons, two Beeston Humber, two White steam cars and a Vauxhall.

Will Aid Tourists—Owners of motor cars in the state of Washington are discussing a plan to organize a state association at a convention to be held in Spokane or Seattle early next summer. It is expected that no fewer than 500 owners will be present, and it is felt such a representative body will not be ignored and will expeditiously be granted the demands they ask in the way of legislation. An important matter which will be discussed is the establishment of relief stations along long stretches of road which are daily traveled. By the building of small cabins in these isolated spots and placing their location on charts to be furnished every member of the state association, such embarrassments could be avoided.

Stanley Waiting—F. E. Stanley is patiently waiting to hear from W. J. Morgan as to the course selected for the race between the Stanley and the Maxwell twelve-cylinder car for the Dewar trophy. He has not started yet on his plans to build a car, for he wants to figure out the course, as he believes much will depend upon it. Louis S. Ross now wants to enter the car he built to take to Florida this year, but was prevented by the change in dates. Stanley is willing he should enter to make it a three-cornered event, but Briscoe has not yet been approached upon the subject. Just as soon as the course is selected Mr. Stanley will start building a racer that he claims will lower the time for the mile by several seconds.

Familiar Question Answered—An answer to the question of what becomes of the old cars is furnished by figures tabulated recently by the Chicago Motor Car Co., which sells Packards in Chicago. These figures show that 100 per cent of the Chicago owners of 1908 cars; 91 per cent of the owners of 1907 cars; 82 per cent of the owners of 1906 cars; 80 per cent of the owners of 1905 cars, and 50 per cent of the owners of 1904 Packard cars still drive their original machines. For a period of 5 years, 95 per cent of all purchasers of Packards is still driving Packards, 87 per cent retains its originally purchased cars, and 8 per cent has purchased later models of the Packard. Of the remaining 5 per cent, 2½ per cent is now driving other makes of cars, while 2½ per cent at present is not driving any cars.





The Readers' Clearing House



STEARNS CARS AT SAVANNAH

Cleveland, O., March 21—Editor Motor Age—With reference to the showing the Stearns cars made in Savannah, we have this to say: In the six-cylinder race, Mr. Leland drove E. H. Inman's six-cylinder car. This was one of the first six-cylinders we turned out. The gear he had on the car was the regular touring gear, and at the speed at which he was going, the motor was turning over 1,750 odd revolutions per minute. Two racing sprockets had been expressed to him, but had not been received. Going at this terrific engine speed for some time had used up all the oil in the crankcase and the connecting rods froze on the shaft, breaking two of the rods. In the long race with Mr. Guerard's car, Leland had continual tire trouble. This car was equipped with the ordinary clincher rims and tires, without any quick detachable features. The Stearns car made two complete circuits with only three tires on it which made it impossible to make a showing, and the race was declared off before the total distance was finished. Mr. Leland was the only representative of the Stearns company on the ground, and absolutely no effort was made by this company to thoroughly prepare for the race, the only object being to give Mr. Leland, our racing driver, some experience in a real race and to have him derive experience from this event so as to aid us in preparing our cars for the Briarcliff and other events. Preparation for the cars for the Briarcliff race are going on with the utmost care and attention. Barney Oldfield's car will be shipped in a day or so. He already has driven it 1,000 miles. Guy Vaughan has entirely recovered from his recent injury, and now is at the factory, tuning up his car. Mr. Leland's car is awaiting him, and the experience he has had in the Savannah races will be of great advantage to him in future. Of course racing is a good deal like fishing—some days you get fish and some days you don't, as the saying goes.—F. B. Stearns.

VELOCITY OF EXHAUST GASES

Bradenville, Pa.—Editor Motor Age—There is an old saying, "if you want to get information, ask questions." Also, "if you want to understand a machine, try to build one; results by calculations are often preferable to mechanical construction." You say the terminal pressure in a 4-inch by 4-inch four-cycle engine is from 25 to 35 pounds. As a two-cycle engine generally is credited with being but a little bit more powerful, though not as reliable, why would the terminal pressure be about one-half that of a four-cycle, or about 15 pounds? Now, what velocity in feet per

minutes would these burnt gases escape into the air at 15 pounds pressure through a port 5-16-inch by 2 inches. The space in the crankcase for the oscillation of the piston is three or four times that of the displacement of the piston, and the compression would be about 6 or 8 pounds. What would the velocity of this be through an inlet port $\frac{1}{4}$ inch by $1\frac{1}{4}$ inches. I have a detailed drawing by a mechanical engineer of a three-port two-cycle engine. By the size of the port, it will be seen that the exhaust port opens $\frac{1}{8}$ second before the inlet ports, and it has been stated in Motor Age the maximum power was developed at about 800 revolutions per minute, with a 4-inch stroke and an 8-inch piston. At 800 revolutions per minute the exhaust port would open .0008 second sooner than the inlet ports. Now, do the burnt gases get so very busy in that little .0008-second to reduce the pressure in the cylinder below that in the crankcase. And, if not, as they open, would not the pressure go into the inlet ports, causing a delay in their entrance? As the inlet ports open, one would think the flame would unite the fresh charge. Is the flame burnt out before the stroke reaches the ports? As they say the explosive heat is about 2,000 degrees, how many pounds pressure would this make, and how far would it have to expand to reduce to atmospheric pressure, say in a cylinder of 4-inch bore and having a compression stroke of 4 inches, with a compression space 25 per cent of the cylinder.—J. M.

The terminal pressure of the exhaust of a two-cycle engine has to be lower than that of a four-cycle, otherwise the spent gases would be at a higher pressure than that of the fresh charge when the inlet port opened, and the new fuel would be forced back into the crankcase. Motor Age has been unable to find any specific data regarding the velocity of gas flow in two-cycle motors of the motor car type, but taking the flow of air through short pipes as a basis, the results of experiments given in engineering handbooks show that the exhaust would have an initial velocity of about 600 feet per second, assuming the pressure to be 15 pounds. But the drop in pressure and likewise the drop in speed would be exceedingly rapid, making it difficult to definitely figure the mean velocity during the time that the exhaust port remained open. Once its inertia was overcome, the inlet gases would probably reach a speed of 150 feet per second, and by the time the port again closed, it would be much greater than this, reaching between 400 and 500 feet per second. Experiments have shown that the valves of the four-cycle motor remain open approximately twice as long as the ports of two-cycle

motors, so that the gas speeds in the former would be much lower. It has been found possible to build an operative two-cycle motor in which the exhaust and inlet ports open simultaneously, though such a motor would naturally be subject to backfiring, or crankcase explosions. But from this you will see that the hot gases may "get extremely busy" in an almost infinitesimal space of time. Much better proportions for a two-cycle motor with a 4-inch stroke would be $\frac{3}{4}$ -inch for the exhaust and $\frac{1}{2}$ -inch for the inlet, thus allowing $\frac{1}{4}$ -inch difference. It would appear practically impossible to prevent the exhaust pressure from interfering with the inlet with such a small allowance as $\frac{1}{8}$ -inch in a motor of this size, but the rapidity of the drop in the exhaust pressure is evident from the fact that motors have been built in which both ports open at the same time. This, in spite of the practically continuous sheet of flame issuing from the exhaust when permitted to escape directly into the air. The explosive pressure and temperatures reached in internal combustion engines are very high, Dugald Clerk giving the former as ranging between 1,000 and 1,500 degrees C., while indicator cards show that the pressure ranges from 250 to 300 pounds to the square inch at the moment of explosion. No internal combustion motor expands to atmospheric pressure, and the time the charge would have to expand from the maximum reached at the moment of explosion down to the usual terminal pressure would depend upon the piston speed of the motor itself. As shown by indicator cards, the drop is extremely rapid; in fact, much more rapid than generally understood.

DEFENDS MAKE-AND-BREAK

New York—Editor Motor Age—In Motor Age, issue of February 20, C. A. Emise, of the Lozier Motor Co., in writing of the advantages of jump spark ignition, severely criticises the make-and-break type for use on motor car motors, claiming the make-and-break is only suitable for marine and slow-speed motors. Mr. Emise surely must have in mind some motor in which a poorly designed make-and-break is installed, and evidently has not investigated the merits of such cars of reputation as the Mercedes, Maja, Berliet, Locomobile and Matheson, whose motors have make-and-break ignition, which gives fully as good results and as accurate timing as any of the high-class cars employing jump spark. I heartily agree with Mr. Emise that the two independent systems, as used on a high-grade car like the Lozier, gives very satisfactory results; but it does not give more accurate timing than any of the truly high-class cars employing make-and-break igni-

tion. The Locomobile, with which I am well acquainted and with whose construction I am familiar, since adapting the iridium point contacts has experienced no trouble like burning of the contacts and its carefully designed rocker arms do not permit of any loss of compression as Mr. Emise has experienced with make-and-break motors. Its low-tension magneto is too well known to mention. I have found it very satisfactory. I am willing to admit that since coil makers have perfected their apparatus, the jump spark motors are in the majority, but for those concerns which have used make-and-break ignition since the motor infancy, and have improved upon it from time to time until now it is almost perfect, I can see no reason why they should discontinue a type of ignition which has given excellent satisfaction in every particular and has gained for itself a reputation for reliability and simplicity.—B. McElwee.

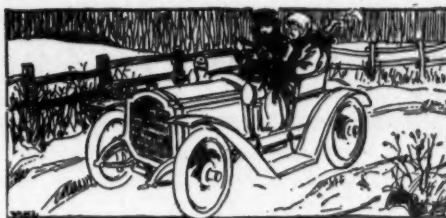
PORTLAND CEMENT

Metamora, Ill.—Editor Motor Age—In a recent issue of Motor Age I noticed something about a kind of cement for the quick repairing of leaks in radiators or water-jackets, but I am unable to find the address of the concern making it.—F. M. Robinson.

The cement referred to was Portland cement, which can be purchased almost anywhere throughout the country.

MORE ON STEAM

Springfield, Mass.—Editor Motor Age—I hope Motor Age will allow me one more chance in the Reader's Clearing House, as the last letter from Mr. Harlan, March 5, is far at variance with my opinions. As in all discussions, original statements get twisted, I would like to correct those as quoted March 5. My original statements September 12 was: "A plain D slide on the high at the pressure used by the White would give too much seat friction and would almost stick with excessive wear on valve gear, etc." On November 28 I said: "The Stanley does not use any of the accepted valve gears, etc. * * * as they sacrifice all advantages of economy resulting from the variable cutoff, etc." I do not see why I should take back these statements. Few parts of a locomotive have received as much attention as the main valve to reduce its seat friction; thus some very accurate formulae have been developed which will figure to within 6 pounds of an indicator card. One of these formulae figures for a piston and a plain D slide seat friction proportional as one is to four, the piston value being taken as one. As moving valves take power from the boiler, we have four times the power to move the D slide than the piston value. Also figuring the link motion friction part for part, we find the sum total of the gear is equal to that which is required to move its valve also, as in the Stanley with its idle eccentric and oscillating link a destructive factor



enters, namely, inertia of these parts, which counts against the best results; thus we have the proportion of powers of the piston to the D slide of two to eight and a slight fraction. I cannot see how the saving in the repairs of a D slide over those of the piston can offset the additional expense required by the D slide at the high pressure used, resulting from wear and tear on valve gear, added cost of power and extra oil required to move the D slide. Full eccentric throw of the valve—direct drive—will not ruin the Stephenson if such be properly designed for the work. I acknowledge that full stroke would ruin the Stephenson of a locomotive from the fact that in locomotive practice the load is designed to be carried on two eccentrics of each gear, so if run long in full gear all the load is on only one eccentric strap per gear, which is overloaded, heats and cuts and is listed for shopping. In the merchant marine service we have the valve driven by full stroke and we do not hear of the Stephenson ruined by such harsh treatment, for the simple reason that the forward eccentric is designed to do all of the work. We have the engines of an Atlantic liner running day and night without ruining their gears; also on torpedo boats the same direct drive is used, the engines having as high rotative speed as the fastest express locomotive. In neither case do we find the Stephenson ruined by being run in full gears. From reading the paragraph carefully regarding the performance in racing with 1,200 pounds I do not see why I should change my opinion one bit. The car in question does not refute my direct drive statement. Taking the statement from the maker, he uses the word adjustable, not variable, for the simple reason an adjustable cutoff can be made by moving the eccentric around to any desired point and still have full motion with a quick cutoff. Variable cutoff is derived from the combination of the forward and reverse eccentrics. Such adjustable cutoff could be used for short runs, but could hardly be recommended for continuous service on account of the long valve travel of the standard gear. My statement that the Stanley used the full gear does not imply that the Stanley engines do not use a shortened valve travel because a Stephenson valve gear does not have to be designed for full to full valve opening in full gear, but any

cutoff point and length of valve travel can be obtained by first determining such and then plot the gear from such points, which I think is the case with the Stanley, as I do not think that any builder of steam engines would give an engine full valve opening and not use at all the expansive properties of steam, as by such expansive properties steam economy is obtained, but such fixed point can not be satisfactory for all conditions of running, being early for hard work and too late for the fastest. Therefore, my stand for valve conditions where the variable cutoff can be obtained.—C. F. M.

QUESTION OF SALESMANSHIP

New York—Editor Motor Age—The writer has had many years of experience in the motor car selling game. He has sold both low and high-priced cars and is of the opinion that the question is a very close one, with the percentage in favor of the high-priced car. First, it takes a high-priced salesman to sell a high-priced car. He is up against an entirely different proposition. His prospective customer, to be sure, has the price of the high-grade goods, but he is more particular, more finicky and, to be short, must be carefully handled. A salesman for a high-priced, high-grade car must possess tact, ability and ingenuity and, furthermore, must be a man capable of making a good first impression and one whose statements will favorably impress his prospect. A high-grade car can be sold without a demonstration if the salesman has the ability to convince his prospect of the secure foundation of the concern he represents and its ability to stand behind its product, guarantee and statements. Such men are scarce and valuable.—Charles G. Percival, sales manager, Cleveland Motor Car Co.

TIRE-FILLING INGREDIENTS

Lansing, Iowa—Editor Motor Age—I would like to know the ingredients which are used for filling tires to take the place of air, and the amount of each kind.—H. C. Scholz.

The principal ingredients are understood to be glue and glycerine, with something added to prevent fermentation. There are several compounds of this description, with certain other ingredients added, but these are understood to be patented.

ILLUMINATING GAS FOR FUEL

Brooklyn, N. Y.—Editor Motor Age—In answer to T. F. W.'s inquiry in Motor Age of February 15, "if it is possible to run a gasoline engine with illuminating gas?" we would say we make a special gas and air-mixing valve to be used in connection with our triple action gasoline carburetor, which delivers a dry gas the same as illuminating gas.—Mathias Weiwoða & Co.





Among the Makers and Dealers



Takes Glide Agency—The Ranger-Barrett Auto Co., of Minneapolis, Minn., has taken on the agency for the Glide line for Minneapolis and St. Paul.

Spiers in New Role—John C. Spiers, formerly factory manager of the Autocar Co., has been appointed factory manager of the Standard Roller Bearing Co. Mr. Spiers has full charge of the manufacturing department of the company.

Lowe Adds Imperial—George H. Lowe, who has been handling motor cars in Boston for a number of years, has just taken on the agency in that city for the Imperial. His headquarters just now are on State street, but he is going to get a location uptown in a few days.

Dubois Cuts In—P. E. Erickson, Park avenue, Dubois, Pa., is a well-known Pennsylvania inventor who has applied for a charter for the Dubois Automobile Co., in which seventeen men of that town are interested. A factory will be built at once and models of the Erickson-Keefer car will be manufactured.

Will Use Circus Tent—So crowded has become the new plant of the Overland Automobile Co. at Indianapolis that arrangements have been completed for hiring a large circus tent, which will be used for assembling purposes during the summer. The new plant has been in operation only a few weeks and a larger one will probably be required for the 1909 season.

Block in New Quarters—The Philadelphia Ford branch, Louis C. Block manager, on Saturday week completed the removal into its new quarters at 250-252-254 North Broad street. Three stories in height and with a total available floor space of over 40,000 square feet, the Ford has a home in every way worthy of a concern doing the business it does in the Quaker City. The first floor will be used for salesroom and garage purposes; the second for the large clerical force and a completely equipped stock room, and the third for machine testing, paint and general repair shops.

Reo Plant Rushed—"We have already received orders for 500 more cars than the 1908 contracts made with our agents called for, many of which dating as early as last September, when there was no indication whatever of a money scare," says R. E. Olds, president of the Reo Motor Car Co. "Confronted with this condition, and orders coming in constantly from new and unexpected sources in every section of the country, we have been obliged recently to very materially increase our capacity for the building and shipment of Reo cars. Our skilled workmen, artisans and other employes at the factory now number 1,100. These have worked steadily all winter, and now we are employing addi-

tional men in order to make good absolutely our positive guarantees of prompt deliveries to dealers and yet meet the present phenomenal rush for Reo cars.

Lausier Changes—Edwin B. Lausier has resigned as sales manager of the motor car department of the American and British Mfg. Co., of Bridgeport, Conn., to accept a position with the Timken Roller Bearing Axle Co., of Canton, O.

Tire Change—The agency for the G & J Tire Co. in the Cleveland district is now in the hands of the D. E. Foote Rubber Co. E. E. Bell, formerly in charge of the factory branch, will be associated with the Foote company. New fixtures are being installed to conveniently handle a full line of tires.

Maxwell in Cleveland—The Maxwell-Briscoe Motor Car Co. has arranged for the organization of the Maxwell-Briscoe-Cleveland Co., of Cleveland. The new concern will act as Cleveland representative for the Maxwell. C. J. Bleadsdale, factory representative of the company, will be in charge of the store, which will be located in the Tabernacle building.

Ex-Columbia Men Placed—Fred E. Dayton, former manager of the Chicago branch of the Electric Vehicle Co., but more recently connected with the sales department at Hartford, now represents the firm of Rogers & Co., of Chicago, in New England, with headquarters in Boston. All the former members of the executive staff of the Electric Vehicle Co. effected by the recent cut-down have located elsewhere. H. W. Kyte, formerly sales manager of the company, is now general manager of a large printing establishment which is located in New York city.

Hoosier Dealers Organizing—Indianapolis dealers have finally taken a step that has been contemplated for some years—that of forming a local organization. It has been named the Indianapolis Automobile Trade Association and has been incorporated without capital stock under the Indiana voluntary association act. Final arrangements were made at a meeting held at the Denison hotel one night last week, when the dealers were unanimously in favor of such a step. The new organization will hold shows, openings, runs, hill-climbing contests, etc. Officers have been elected as follows: Frank Staley, vice president of the H. T. Hearsey Vehicle Co., president; A. E. Vinton, of the G & J Tire Co., vice president; P. D. Stubbs, secretary of the Overland Automobile Co. and local representative of the American Motor Car Sales Co., secretary; Frank L. Moore, of the Fisher Automobile Co., treasurer. The directors are: B. W. Twyman, Gibson Automobile Co.; Charles R. Newby,

Capital Auto Co.; R. H. Losey, Buick-Losey Co.; D. B. Sullivan, D. B. Sullivan Automobile Co., and Paul Smith, Indianapolis Motor Car Co.

Starts Motor Livery—The Sweany Auto Livery Co., of Cleveland, has opened an establishment on Euclid avenue, near East Nineteenth street. It will do a livery business exclusively.

Handling White in Milwaukee—An agency for the White has been opened up in Milwaukee. Mayter Hoppenyan, of Ashland, Wis., a former undertaker in that city, is in charge of the new branch. A garage has been fitted up at 803 Grand avenue.

Pay for Receivers—Judge Shumway in the superior court has passed an order authorizing Halsey M. Barrett and Henry W. Nuckols, receivers of the Electric Vehicle Co., to pay themselves \$900 each as compensation on account. Orders authorizing the continuation of business and the acceptance of accounts of business were likewise passed.

Neighbors Object—In view of the unexpected opposition of thirty-three residents of the neighborhood, the Indianapolis city council has postponed action on the ordinance relating to the new plant of the Prest-O-Lite Co., on East South street in that city. The ordinance was so amended that the company would be permitted to remain in its new plant, doing its charging in another part of the city. However, the neighbors say they are unalterably opposed to the amended ordinance.

Situation in Hartford—The situation continues to improve in Hartford, Conn., and the factories there are running along smoothly. The Pope company is occupied getting out cars for immediate delivery and the receivers of the Electric Vehicle Co. have got down to business and are turning out Columbia light gasoline cars. The accessories end of the business looks much improved and all concerned are optimistic, it is reported. As far as the retail situation is concerned it is all that could be desired.

Injunction Issued—The Hartford Suspension Co., maker of the Truffault-Hartford shock absorbers, announces it has been granted an injunction against the Motor Car Equipment Co., restraining it from manufacturing, selling or using Hercules shock absorbers which the Hartford company declares is an infringement of its device which carries letters patent No. 803,589. What is called an anti-vibration device is manufactured by the Hercules Auto-Specialty Mfg. Co., of Los Angeles, Cal., whose agent in New York is the Motor Car Equipment Co. The order of the United States court restrains the defend-

ants from handling in any way the Hercules device or any other device "like or similar in appearance of the device complained of in this suit."

Continental Agent—The Continental Caoutchouc Co., manufacturing Continental tires, is now represented in Buffalo by the Centaur Motor Co., 59 Franklin street, distributing agent.

Show Room for Matheson—The Matheson agency, which handles the Ohio, western Pennsylvania and West Virginia territory, has just opened show rooms at 507 Wood street, Pittsburgh. E. J. Schellen-trager is the local agent.

Jay Takes Acme Agency—R. E. Graham, of the Acme Motor Car Co., of Reading, Pa., is taking a rather extended trip through the west visiting the different agencies of the company. In Chicago arrangements have been made with the Webb Jay Motor Co. to take the Acme agency.

Increase Capital—S. F. Bowser & Co., of Fort Wayne, Ind., oil tank manufacturers, have authorized an issue of \$300,000 worth of preferred stock in order to give it more working capital. It is understood that the stock is to be sold in shares of \$100 each, the stock to bear 6 per cent interest and to be retired in 10 years, if the holder so desires.

Working Two Shifts—It has been announced by the management of the Mitchell Motor Car Co., of Racine, Wis., that its factory will commence running night and day April 1. During the year the company has worked 400 men full time, but when starting night and day it will be increased to 800 men. Shipments of cars have so far this month doubled that of last year for the corresponding time. The output will be 2,500 machines and all are sold, it is said. The company is building two large additions to the plant, and

if the city of Racine will give a portion of Packard avenue there will be erected an addition of 600 by 100 and within 2 years employment given to 1,200 men.

Opening in Butler, Pa.—C. N. Boyd and E. Abrams have let the contract for the erection of a large garage and storeroom at Butler, Pa. The building will be occupied by S. M. Root, who will have the agency for the Pope-Hartford and the Pierce-Arrow.

Form Relief Association—About 200 members of the Whitney Mfg. Co. attended the annual meeting and smoker of the Whitney Mfg. Co. Mutual Relief Association. The following officers were elected: President, John J. Grady; vice-president, Louis E. Dungan; secretary, Arthur L. Brown; treasurer, J. H. Tresibach; trustees, W. J. Belcher, C. A. Pease and C. E. Harding.

Selling to Farmers—The Greensburg Automobile Co., of Greensburg, Pa., one of the strongest suburban concerns in western Pennsylvania, soon will have its new building ready for occupancy. The main room will be 120 by 80 feet, and a wing off from it will be 34 by 80 feet. The company is selling cars to the wealthy farmers of Westmoreland county, a large number of whom live in Greensburg, Pa.

Labor Trouble Settled—The long struggle between the union and the Badger Brass Mfg. Co., of Kenosha, Wis., manufacturer of Solar lamps, has ended, the union accepting the original terms offered by the company. If its members return to work it will be only as they are needed, the union recognizing it as an open shop. The men who took the most active part in the fight will not be allowed to return to work. The district attorney has not stopped his prosecution for conspiracy against the leaders of the labor organization, and it is expected that sev-

eral will be arrested soon. It is said that with the settlement made the leaders will leave the city, having been here only to direct the fight.

Earl in Northwest—A northwest agency has been established in Minneapolis at 211 Seventh street, south, by the Earl Motor Car Co., of Kenosha, Wis. Kemp Brothers, in that city, will sell the Earl cars in the future.

Schreiber Has Opening—The Schreiber Motor Co. has opened its new garage at 174-178 Fifth street, Milwaukee. This is one of the most modern and well equipped garages in the city and is the home of the Locomobile, of which the Schreiber company is agent.

Test of Raybestos—According to the Royal Equipment Co., of Bridgeport, Conn., the mechanical engineer of one of the largest motor car companies recently put Raybestos, a brake lining, to a thorough test. Brakes lined with this material were fitted to a heavy car and the brakes set. Then the car was towed by another one for 4 miles. It is said this did not affect the holding power of Raybestos and that an examination failed to show much wear.

White Garage in Pittsburgh—The White Co., of Cleveland, has bought the new garage of the Liberty Automobile Co., at 138-148 Beatty street, Pittsburgh. The building is 80 by 120 feet, and will be occupied by the Pittsburgh branch of the White Co., which will be managed by William B. Yoder. The new company takes possession April 1. The Liberty Automobile Co. was composed of Fred Fischer and William B. Hassock, and has retained the privilege of keeping models of the Mora and Wayne cars at the garage for a few weeks. Manager Yoder, of the White Co., is a large real estate holder in Pittsburgh. The White agency formerly was held by the Keystone Automobile Co.

CHAIRMAN BRISCOE NAMES A. M. C. M. A. COMMITTEES

STANDING COMMITTEES for 1908 have been named by Benjamin Briscoe, chairman of the committee of management of the American Motor Car Manufacturers' Association. There are few changes in the committees over last year. The show committee will again have H. O. Smith, president of the Premier Motor Mfg. Co., as its chairman. Associated with him will be S. H. Mora, of the Mora Motor Car Co., and R. M. Owen, of the Reo Motor Car Co. Following are the committees: Show committee—H. O. Smith, Premier Motor Mfg. Co., chairman; S. H. Mora, Mora Motor Car Co.; R. M. Owen, Reo Motor Car Co. Tours and races—W. C. Marmon, Nordyke & Marmon Co., chairman; H. O. Smith, Premier Motor Mfg. Co.; A. C. Newby, National Motor Vehicle Co. Good roads—Charles E. Lewis, Jackson Automobile Co., chairman; James Couzens, Ford Motor Co.; R. E. Olds, Reo Motor Car Co.; H. B. Krenning, Dorris

Motor Car Co. Legislation—R. E. Olds, Reo Motor Car Co., chairman; C. G. Stoddard, Dayton Motor Car Co.; A. C. Newby, National Motor Vehicle Co.; R. A. Palmer, Motorcar Co.; R. E. Graham, Acme Motor Car Co. Membership—W. H. Van der Voort, Moline Automobile Co., chairman; Morris Grabowsky, Rapid Motor Vehicle Co.; E. K. Burroughs, Abendroth & Root Mfg. Co. Advertising and publicity—Barney F. Everitt, Wayne Automobile Co., chairman; Harry Fosdick, Moon Motor Car Co.; G. B. Louderback, Buckeye Mfg. Co.; Theodore P. Bailey, St. Louis Car Co.; Leon Myron Bradley, New York office; Charles E. Duryea, New York office. Finance—James Couzens, Ford Motor Co., chairman; W. G. Morse, Atlas Motor Car Co.; J. B. Bartholomew, Bartholomew Co.

Standardization and technical—John D. Maxwell, Maxwell-Briscoe Motor Co., chairman; Henry Ford, Ford Motor Co.; R. S. Crawford, Crawford Automobile Co.; L. P. Mooers, Moon Motor Car Co.; R. E. Olds, Reo Motor Car Co. Freight and transportation—Harry Knox, Atlas Motor Car Co., chairman; H. W. Mack, Mack Brothers Motor Car Co.; R. Harry Croninger, Pennsylvania Auto-Motor Co.; J. N. Willys, Overland Auto Co.; G. D. Wilcox, Gearless Transmission Co.; C. C. Hanch, Nordyke & Marmon Co. Tires—G. V. Rogers, Mitchell Motor Car Co., chairman; James Couzens, Ford Motor Co.; Frank Briscoe, Brush Runabout Co.; O. Stevenson, York Motor Car Co. Agencies—W. H. Van der Voort, Moline Automobile Co., chairman; A. R. Welch, Welch Motor Car Co.; H. S. Leyman, De Luxe Motor Car Co.; Frank L. Pierce, Gaeth Automobile Co.; H. B. Larzelere, Chadwick Engineering Works.



REALM OF THE COMMERCIAL CAR

PRIZES won in the commercial vehicle trials of the Royal Automobile Club of Great Britain and Ireland have just been presented, although the tests took place last fall. It also has been announced that the contest cost the club \$17,500 in excess of the entry fees. At the presentation of the prizes the judges filed their formal report, which points out that while the tests were comprehensive, yet the total distance covered was only sufficient to bring out radical faults and weaknesses and to enable certain general conclusions to be drawn. The interesting part of the report is as follows:

"For useful loads exceeding 3 tons the tractor is the most economical for general haulage. Where speeds are required which are too high for the tractor the internal combustion engine lorry mounted on rubber tires becomes a necessity. The steam lorry, although it possesses the disadvantage of large axle weights, can with advantage be employed where high speeds are not required, and where the loads have to be delivered at quays or places in which the tractor with its trailer could not be so readily maneuvered.

"The gasoline lorries submitted were capable of speeds on the road which were excessive, and should not be tolerated. A general reduction of gear ratios seems a necessity, and would result in greater economy, inappreciable loss in average speed on the road and less wear and tear of both road and vehicle. The cost of upkeep increases very rapidly with increase of road speed, and, although the true economic speed has not yet been determined, high maximum road speeds should be avoided as a general rule in commercial vehicles.

"The reliability and regularity of running throughout was remarkable. The condition of the majority of the vehicles after the trials was on the whole satisfactory. The amount of wear on the parts was in many cases inappreciable; but some manufacturers have still much to learn, as regards design and the selection of material, before they arrive at a vehicle showing low cost of maintenance and durability. A striking feature in the trials was the successful use of india-rubber tires carrying heavy loads up to 5 tons. About 90 per cent of the vehicles, excluding tractors, had rubber tires, which gave on the whole remarkably little trouble, notwithstanding the high temperature recorded by the thermometer on several days of the trial. It was noted that on more than one occasion, after a rapid run, the hubs of those wheels fitted with ball bearings remained cool, while many of those not so fitted were quite warm, and in one or two cases overheated. This points to diminished friction,

and, therefore, lessened wear and tear. There would appear to be a future for a type of vehicle suited for delivery work in the country in cases where speed on the road is of secondary importance, where capital outlay and running cost are required to be reduced to the minimum, and where the loads to be carried would not exceed 3 tons. The majority of gasoline lorries, being a very high-class engineering product, does not fulfill these conditions, and manufacturers might well turn their attention to a cheaper and slower class of vehicle.

"The trials have demonstrated that petroleum fuel can be successfully used for internal combustion engine lorries in lieu of petroleum spirit; the relative price of these fuels renders it desirable that more general attention should be paid by manufacturers to the possibilities of less volatile fuels, which possess the additional advantage of greater safety in storage and handling. It is regretted that no tractor fitted with an integral combustion engine was entered in the trials. The steam vehicle as at present constructed requires to pick up water at frequent intervals, generally not exceeding 20 to 30 miles. In Great Britain this presents no difficulty, but in the colonies and elsewhere abroad, where mechanical transport can be and is being developed, such facilities for water may not exist. The internal combustion engine, or a steam vehicle fitted with a condenser, is there a necessity, as its use enables the radius of action of the vehicle to be increased to distances exceeding even 150 miles, the limit depending on the capacity of the fuel and water tanks.

"As regards the details of construction and design of the vehicles that competed in the trials, it was evident that a very great improvement all round has been made during the past few years. This was notably the case in the matter of wheels, which the earlier trials of the heavy vehicles in this country had proved to be in many cases very defective, and the cause of much trouble. A marked improvement was generally apparent in the attention paid to details, such as wiring, accessibility of nuts, bolts, etc., and ease of removal of those parts which require most attention; there were, however, a few vehicles in which such points had been totally neglected.

"The greatest credit is due to those employed in totally dismantling and reassembling the fifty vehicles on conclusion of

the trial, in that, excluding the 2 days reserved for detailed examination by the judges, the whole of this work was carried out in 3½ days.

"In conclusion, it may be said that the commercial vehicle trials have fully justified the heavy expenditure of time and money devoted to them, and it is believed that the opportunity given to the entrants to study the behavior of their own and other competitors' vehicles under the strict conditions of the trials will result in improved design and a benefit not only to themselves but to the ever-increasing number of those to whom facilities for mechanical transport on common roads are of importance."

BOSTON LOSES PRESTIGE

Fire Commissioner Samuel D. Parker, the newly appointed head of the city of Boston fire department, has set out to make a record for economy in his administration by starting off putting the motor car used by Chief Mullen in the refrigerator, comparatively speaking. The car will now be used for tours of inspection—"joy rides"—and when not doing this, if a second or third alarm comes in from the suburbs and the car is at hand, the chief may use it. Otherwise, the chief is to use a horse and carriage. This puts Boston back in the rank of cities of the fifth class, for even Springfield and Bridgeport, small New England places, have motor cars for their chiefs. The new commissioner claims it is too expensive as the city is to have a business administration under Mayor Hibbard. Yet the latter has ordered a motor car for which he is paying on the installment plan. He pays so much per hour, and when the total sum amounts to the cost of the car it will be turned over to the city. The fire commissioner has an electric at his disposal. Some of the Bostonians are laughing at the inconsistency of the whole thing, and they are wondering what excuse will be given when a big fire breaks out and Chief Mullen gets there too late to take in the situation and check its progress, thereby causing a heavy property loss or endangering the life of people. Just now they are talking of the many schools that are without adequate fire protection, and it is a fact that on Beacon hill once a fire got well started it would gain great headway before the apparatus could get up the hill to check it. And most of it is residential property, so that lives are endangered. Chief Mullen and some of his men could get up there quickly, long before the apparatus, and do a lot of good work—if he had the car. It is a poor policy that attempts to be economical at the expense of lives and property, it is argued.



LEGAL LIGHTS AND SIDE LIGHTS

HARTFORD CITY IS AROUSED

Some time ago the police of Hartford, Conn., announced a rigid campaign in the control of vehicular traffic. The growth of the city and the increased use of all wheeled vehicles made this step imperative. The public in general was duly warned as to the intentions of the police department, and much printed matter was distributed among the users of motor cars and other conveyances. Motor car drivers for the most part had always followed certain rules laid down by the police, such as drawing up to the curb on the right side of the road. It appears, however, that team drivers have been violators to a greater extent than motorists. A few days ago a driver for a prominent fire insurance official drew up on the left side of the road and was warned by the patrolman in that vicinity as to the proper observance of the ordinances. The driver repeated the performance shortly after and was ordered to appear in court. Another local motorist had his car damaged to some extent by a collision with a team, due to the driver of the horse vehicle crossing directly in front of the motor car. As matters stand at present team drivers will not keep to their own side of the road or make room for others. Hence the crusade.

GOOD ROADS LAW PROBABLE

Maryland is to have a good roads law, an agreement on the bills introduced by Senator Biddison and Delegate Benson having been reached by the legislature after a bitter fight. According to the compromise reached by the lawmakers, the road commission will be composed of three members of the Maryland Geological Survey Commission and three other members from different sections of the state to be appointed by Governor Crothers. The governor, who is a member of the survey, will be a member of the commission, and the other two members of the commission from the survey will be Dr. William Bullock Clark and Dr. Ira B. Remsen, of Johns Hopkins university, or Professor Sylvester, of the Maryland Agricultural college. The other three members are to be paid \$2,000 a year each. Another amendment to the compromise bill, before it becomes a law, will be the striking out of the provision fixing the salary of the chief engineer at \$3,000. It will be left to the commission to fix the salary at any figure, making it possible for the commission to avail itself of the best engineering talent it can secure. Mayor Mahool, of Baltimore city, has suggested before the bill is finally passed, that a clause in the good roads bill be included providing that \$1,000,000 of the \$5,000,000 to be appropriated by the state for road building be given to

Baltimore for the paving of the turnpikes within the city limits. These turnpikes are used mostly by the people of the counties, as well as motorists. The city feels it is entitled to one-fifth of the appropriation, since it pays 66% per cent of the state taxes.

ABOLISHING TOLL BRIDGES

The Connecticut river is spanned by many bridges in the state of Connecticut between Thompsonville on the north and Lynne on the south, and most of these are toll affairs. These thoroughfares are much used in the summer and fall, when touring is at its height, and motorists complain of the exorbitant rates of toll. An effort has been made in the past to free these structures, but as matters now stand at least three of the bridges require the payment of a toll. A bill was introduced in the last legislature to make these structures free, and the only way in which this can be accomplished is to acquire them outright by sale to the state. In order to bring about the desired end, the bridges have to be condemned by a commission which appraises their value. The Enfield-Thompsonville bridge figures in the limelight and will be acquired by the state and made free. Then it is to be maintained by the county in which it is situated. Naturally, the corporation controlling the bridges finds them a good investment, and is of course hardly disposed to lose control of them. A final settlement of all matters pertaining to the Enfield-Thompsonville bridge will be reached in a few days. Out-of-state motorists who tour Connecticut will appreciate the change, for it is one of the greatest nuisances tourists encounter to have to stop so often to hand over some loose change in order to use roads and bridges that ought to be free, it is contended by those who are fighting the toll bugaboo.

COMMITTEE WILL KILL IT

The Massachusetts legislature seems to have seen the light or perhaps the handwriting on the wall, for there is a rumor prevalent that the proposed taxation of motor cars on the horsepower basis never will get beyond the committees that considered it this year despite the work done in its behalf by powerful influences, from the governor down. Still, no one is thoroughly sure of it. The chairman of one of the committees told Motor Age's representative there was every likelihood of no bill being reported.



ATTACKS CHICAGO WHEEL TAX

The Chicago Motor Club has made its threatened attack upon the wheel tax, which the city of Chicago intends to put into effect May 1 unless legally restrained. The club, through its attorney, John A. McKeown, filed its application for an injunction in the supreme court last Monday. Its contention is that as the motorists of the state already pay a license in the shape of a registration fee that it is double taxation to be compelled to pay a wheel tax. In taking this step the motor club is following the example of the teaming interests, which some time ago attacked the validity of the ordinance. Legal authorities point out a dozen different ways in which the measure may be attacked, and it is believed the motorists will be successful in gaining their point in this instance. The motorists would not fight the wheel tax if there had been an equitable adjustment of the fees, it is said, but they refuse to pay twice as much as horse-drawn vehicles, especially when the latter use the city streets 10 hours to the motor cars' 1, the bulk of the motor driving being on the boulevards over which the city has no jurisdiction. It is pointed out that if they were to submit to this tax there would be nothing to prevent the park commissioners from passing a similar law and making the motorists pay for the use of the boulevards. The idea of devoting the fees to the maintenance of the roads suits the motorists, but they do not want to pay much more than what they share.

FLAWS IN REGISTRATION LAW

There is great dissatisfaction this year among Pennsylvania motorists, and especially dealers, because of the apparent injustice of the state registration law. The driver and not the owner of a car is required to take out the state license. Because of this it is claimed there is no way of getting a reliable list of Pennsylvania motorists. Furthermore, it is urged that a man may own a dozen cars and yet not be able to take an hour's ride by himself in the evening because his license is held in his driver's name. Recent attempts have been made by Pennsylvania congressmen to get a federal registration law passed, but to no avail. At present the only salvation in the situation lies in the fact that the Pittsburgh city ordinances require the owner himself to take out a license in his own name.

BORROWERS IN DANGER

If the bill of Senator Lamb, of Toledo, which was passed by the senate last week, passes the house and becomes a law, anyone who takes and uses, not steals, any motor vehicle in the state of Ohio may be fined \$500 or imprisoned.



Brief Business Announcements



Philadelphia, Pa.—J. T. McCorkle is to erect a one-story brick garage for James Sword at 254 Queen street.

Brooklyn, N. Y.—The Bruns Automobile Co., of Bedford avenue, has been appointed local agent for the Stoddard-Dayton.

Cleveland, O.—The Leonard Motor Car Co. has changed its name and now is the Wolf Motor Car Co. It will continue to represent the Jackson.

Utica, N. Y.—The L. L. Laman Auto Top Co. has removed its factory from 75 Lafayette street to the large factory building at 179 Blandina street.

Utica, N. Y.—A Haynes agency will be established here. H. A. Babcock, of Lowville, who has the agency for northern New York, expects to secure a suitable location in the near future.

Richmond, Va.—A motor passenger line is to be put into operation between Berryville, Binemont and Winchester. A twelve-passenger car has been purchased and Herbert T. Markes will be in charge.

New York—Leon Rubay, dealer in motor supplies at 1697 Broadway, has filed a petition in bankruptcy. Peter Zucker has been appointed receiver. The assets of the company are estimated at \$4,000.

Middletown, N. Y.—Dayton & Mitchell have leased the property at 63 East Main street, and will erect a garage. They have been appointed local agents for the Ford and also will carry a line of supplies and accessories.

Philadelphia, Pa.—Application will shortly be made for a charter for a new concern, to be known as the American Auto-Drive Co., which will manufacture and deal in parts for motor vehicles, etc., whether electric, gasoline or steam cars.

Sacramento, Cal.—Arthur Mills, of Ione, is the inventor of a new truck. It is to be put on the market by the Sacramento Motor Truck Co. W. H. Routledge, the president of the company, has financed the undertaking, and is making preparations to erect a factory.

Utica, N. Y.—Harry M. Mundy has removed from room 17 Utica City National Bank building to 221 Genesee street. He will occupy a ground floor office in the Fort Schuyler block, where he will have a full line of motor supplies. Mr. Mundy has the local agency for the Oldsmobile and has a local tire depot.

New York—H. W. Jones, who for the past 2 years has been associated with the Mercedes Import Co., and previously was connected with the Pop Mfg. Co., has joined the forces of the A. G. Southworth Co., agent for the Pope-Hartford and Matheson. Mr. Jones will be in charge of the Matheson sales department, while the

interests of the Pope-Hartford will be looked after by A. L. Newton, as heretofore.

Shreveport, La.—The Louisiana Auto and Repair Co. has been incorporated with a capital stock of \$25,000.

Los Angeles, Cal.—William J. Batchelder has fitted up a garage at Twelfth and Main streets, and will act as agent for the Stearns.

Philadelphia, Pa.—David O. Eaton has removed from 326 North Broad street to larger quarters at 312 North Sixteenth street. Eaton has the local agency for the Rapid.

New York—A petition in bankruptcy has been filed by the Darracq Motor Car Co. of 1989 Broadway. Lindsay Russell has been appointed receiver, with a bond of \$50,000.

Philadelphia, Pa.—Sanders Levy and F. Berrodin, treasurer and manager of the local branch of the G & J Tire Co., are now located in their new building at 713-715 North Broad street.

Utica, N. Y.—Otto L. Endres, of 217-219 Varick street, who for the past 12 years has conducted a bicycle business at that address, has just made an arrangement with a large motor car tire concern for the installation of a tire vulcanizing plant.

New York—Another company which has filed a petition in bankruptcy is the New York Car and Truck Co., manufacturer of car trucks and motor accessories at Kingston, N. Y. Judge Holt appointed Robert Wilkinson, of Poughkeepsie, receiver. The assets of the company are said to be about \$75,000. Orlando F. Thomas, who



New York—Knickerbocker Taxicab Co., capital stock \$15,000. Incorporators, S. Hurlburt, S. J. Wise and Stewart H. Elliott, all of New York.

Paterson, N. J.—Taximeter Auto Co., capital stock \$125,000, to manufacture motors, engines, cars, boats, etc. Incorporators, W. F. Harding, A. A. Fischer, J. F. Blauvet.

New York—Union Taxicab Auto Service Co., capital stock \$150,000, to manufacture, deal in, operate and hire motor cars. Incorporators, F. A. Phillips, William J. Duane and C. C. Bailey.

Jersey City, N. J.—Federal Taxicab Co., capital stock \$200,000, to manufacture motors, engines, machines, cars for the transportation of goods and passengers. Incorporators, E. McMills, R. F. Tully, C. A. Cole.

Hoboken, N. J.—Mutual Taxicab Co., capital stock \$125,000, to conduct a general electric cab service. Incorporators, A. V. Jones, H. M. Browne, and F. W. Mills, all of New York city.

New York—S. & S. Variable Speed Gear Co., capital stock \$20,000, to manufacture variable speed gearing. Incorporators, B. G. Young, C. D. Francis and R. E. Bond.

is connected with the Mercantile National Bank another bankrupt concern, is the president of the company.

Allentown, Pa.—James N. Rhoda has commenced the erection of a garage on Eighteenth street and Roth avenue.

Kansas City, Mo.—The Buick Automobile Co. is to erect a new building. The building is to be completed during the coming summer.

Philadelphia, Pa.—E. L. Thrasher, who for the past 7 years has been connected with the Knox Automobile Co., will in the future be associated with the Rambler.

Kingston, N. Y.—The brick barn on Clinton avenue, near Albany, on the property of Judge S. F. Sharpe, has been converted into a garage, and will be run by William M. Davis.

Longmont, Colo.—A new motor bus passenger and freight line is to be opened on May 15 between this town and Estes Park. L. C. Larsen and O. P. Lowe are the managers of the new enterprise.

Newark, N. J.—Vice Chancellor Howell has confirmed the sale of the Imperial property in Chicago, a holding of the Pope Mfg. Co., for \$92,000. Action on the Randall property has been postponed for a week.

New York—H. M. Pyke, formerly connected with the Packard company, has been added to the selling force of the Harry S. Hout Co. Frank Bowen, a former salesman for the local branch of the Ford company, has closed a contract with the Hout company.

Columbus, O.—The Columbus Garage and Machine Co., recently incorporated, has been organized by the election of the following officers: President, Fred W. Lutenberg; vice president, C. S. Hasenzahl; general manager, H. L. Thuma; secretary, C. R. Hambleton; treasurer, C. L. Bethard. The company has leased the garage at 35-41 West Mound.

Chicago—A new tire is to be put on the market by the American Cellular Tire Co., of the Great Northern building. The new tire is to be known as the Cellular, and is a semi-solid, but neither a pneumatic nor solid tire. The company will not directly manufacture the tire, but will license other tire manufacturers to make it, and will control the sale.

Trenton, N. J.—Carl F. Adams, of the Adams Electric Co., has purchased the stand and business of the Richard garage, which for some time past has been conducted by William Kent. After considerable improvements and alterations are completed, the garage will be taken over by J. Harold Johnston, who has the agencies for the Mitchell, Ford and Kissel cars.